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CHROMOSOME NUMBERS IN ANGIOSPERMS

III

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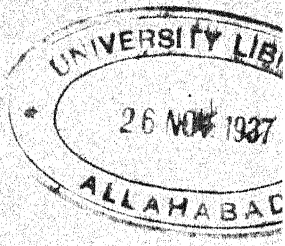

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CHROMOSOME NUMBERS IN ANGIOSPERMS II

Bibliographia Genetica VI, 1930

ERRATA

Page 189 — In connection with *Melandrium alba* see also references for *Lychnis alba* MILL. (GAISER 1926).

„ 204 — Insert *Capparis spinosa* L.: 2n = 38; KUHN, 1928*b*.

„ 225 — *Rubus thyrsiger* BAB.; $n = 5 + 4_1$.

„ 235 — Insert for *Prunus triloba* LDL.; 2n = 64; KOBEL, 1927, instead of DARLINGTON 1928.

„ 236 — All the numbers for *Prunus avium* varieties should be under the 2n column instead of the n column.

Pages 236, 237, 240, 241, 244, 245 and 246 — Where CRANE 1927 is given, the name is intended as a bibliographic reference. The counts were made by DARLINGTON and given by CRANE 1927.

Page 344 — *Tripsacum Barberi* JESW. Should be *Saccharum Barberi* JESW.

„ 345 — *Kassoer* not *Kassover*.

Pages 358—366 — Omit references to BLEIER 1926.

Page 455 — SKALINSKA and CUCHTMAN should be 1927 instead of 1926.

CHROMOSOME NUMBERS IN ANGIOSPERMS III

BY

L. O. GAISER

As stated in the previous publication (GAISER 1930) lists of chromosome numbers were to be prepared annually to supplement those of the two previous lists (1926, 1930). The latter include investigations up to the end of 1928. The present includes the results of researches published during 1929 as well as some of 1928 which had not been received in time for the earlier papers.

The same method of arrangement as had been used previously has been followed here so that there may be as much uniformity as possible. Other annual supplemental lists will follow regularly in this same publication.

DICOTYLEDONEAE

	n	2n	
VERTICILLATAE			
CASUARINACEAE			
Casuarina equisetifolia LINN. .		ca. 24	WETZEL, 1929.
„ *montana* LESCHEN. .		24	„ „
„ *stricta* (DRYANDER) AIT..		ca. 24	„ „
SALICALES			
SALICACEAE			
Salix aurita.	19		HÅKANSSON, 1929*c*.
„ *caprea*	19		„ „
„ *gracilistyla*	19 [1])		SINOTO, 1929*b*.
„ *japonica*	19 [1])		„ „
„ *laurina* f. *hortensis* . . .	38[2])	$+\frac{6_1-7_1}{2}$	HÅKANSSON, 1929*c*.
„ *leucopithecia*	19 [1])		SINOTO, 1929*b*.
„ *melanostachys*	19 [1])		„ „
„ *sachalinensis*	19 [1]), ca. 24 [3])		„ „
„ *viminalis*	19		HÅKANNSSON, 1929*c*.
„ *cinerea* × *S. phylicifolia*	44		„ „
(„ *repens* × *S. viminalis*) × *S. repens* F_2 = *S. amerinoides*		ca. 76	„ „
„ *viminalis* × *S. caprea* ♀ (*laurina artefacta*) . . .		76	„ „
„ *viminalis* × *S. caprea* F_1	19		„ „
„ *viminalis* × *S. caprea* F_2	19		„ „

[1]) An unequal pair of chromosomes was distinguishable in meiotic divisions of the male flowers.

[2]) Frequently a quadrivalent resulted from the fusion of 2 bivalents or a trivalent from the fusion of a bivalent and a univalent.

The somatic number was judged, by meiotic conditions, to be 82—84.

[3]) A form of *S. sachalinensis* from Hokkaido had ca. 24 chromosomes and showed irregular divisions.

SALICACEAE (continued)	n	2n	
Salix (continued)			
Salix viminalis × *S. caprea* F_2 (*aurita*-like).	19, 20	38–39	HÅKANSSON, 1929*c*.
„ *viminalis* × *S. caprea* F_1 ♂	19		„ „
„ *viminalis* × *S. caprea* F_2 ♂	19		„ „
„ *viminalis* × *S. caprea* F_2 ♂ (*gigantea*).	$\frac{14_3+5+5_1}{2}$	$\frac{19_3}{2}$ 57	„ „
„ *viminalis* var. *yezoensis*	19 [1])		SINOTO, 1929*b*.
FAGALES			
BETULACEAE			
Carpinus betulus L.	8		WETZEL, 1929.
Ostrya carpinifolia SCOP. . . .	8		„ „
Corylus americana MILL. . . .	11		„ „
„ *americana* WALT. . .	14 [2])		WOODWORTH, 1929*c*.
„ *avellana* L.	11		WETZEL, 1929.
	14 [3])		WOODWORTH, 1929*c*.
„ *avellana* var. *pendula* GOESCHKE	14 [4])		„ „
„ *colurna* L.	14 [4])		„ „
„ *cornuta* MARSH. (*C. rostrata* AIT.)	14 [5])		„ „
„ *heterophylla* FISCH. . .	14 [4])		„ „
„ *heterophylla* var. *sutchuensis* FRANCH. . .	14 [4])		„ „
„ *maxima* MILL. (*tubulosa* WILLD.)	11		WETZEL, 1929.
„ *maxima* MILL. . . .	14		WOODWORTH, 1929*c*.
„ *maxima* var. *atropurpurea* DOCHNAHL . .	14 [2])		„ „
„ *pontica* KOCH.	14 [4])		„ „
„ *rostrata* AIT. var. *mandschurica* (MAX.) REG..	11		WETZEL, 1929.
„ *sieboldiana* BLUME . .	14 [4])		WOODWORTH, 1929*c*.
„ *sieboldiana* var. *mandschurica* (BL.) SCHNEID.	14 [3])		„ „

[1]) See foot-note 1 page 162.
[2]) Meiosis somewhat abnormal.
[3]) Meiosis mostly normal.
[4]) Meiosis normal.
[5]) Meiosis abnormal.

BETULACEAE (continued)	n	2n	
Corylus (continued)			
Corylus tibetica BATALIN . . .	14 [1]		WOODWORTH, 1929*c*.
„ #9 („*C. vollesteni*")	14 [2]		„ „
× *Corylus spinescens* REHD. (*C. tibetica* × *C. avellana*)	14 [1]		„ „
× *Corylus vilmorinii* REHD. (*C. chinensis* × *C. avellana*)	14 [1]		„ „
BETULA			
Betula nana L.	14		WETZEL, 1929.
Subsection Costatae			
Betula grossa SIEB. et ZUCC. .	42 [1]		WOODWORTH, 1929*a*.
„ *lenta* L.	14 [1]		„ „
„ *lutea* MICHX.	42 [2]		„ „
„ *nigra* L.	14 [1]		„ „
„ *Schmidtii* REGEL. . . .	14, $\frac{10+8}{2}$ [3]		„ „
„ *coerulea-grandis* BLANCHARD	14 [1]		„ „
„ *coerulea* BLANCHARD (*B. coerulea* = *B. grandis* × *B. populifolia*). .	14 [1]		„ „
„ *fontinalis* var. *piperi* SARG.	14 [1]		„ „
„ *japonica* SIEB.	14 [1]		„ „
„ *japonica* var. *mandschurica* (REGEL) H. WINKL.	$\frac{39-42}{2}$ [3], $\frac{(14+28_1)}{2}$		„ „
„ *papyrifera* MARSH. . .	35 [4]		„ „
„ *papyrifera* var. *cordifolia* (REGEL) FERNALD .	28 [2]		„ „
„ *pendula* ROTH. *B. verrucosa* EHRH. (hybrid?)	14 [3], $\frac{13+2_1}{2}$, $\frac{12+4_1}{2}$, $\frac{11+6_1}{2}$		„ „
„ *populifolia* MARSH. . .	14 [1]		„ „

[1]) Meiosis normal.
[2]) Meiosis somewhat abnormal.
[3]) Meiosis very abnormal.
[4]) Meiosis almost normal.

BETULACEAE (continued)	n	2n	
Subsection Acuminatae Regel			
Betula maximowicziana Regel .	14 [1]		Woodworth, 1929*a*.
Subsection Nanae			
Betula pumila L.	28 [1]		„ „
Hybrids:			
× *Betula jackii* Schneid. (*B. lenta* × *B. pumila*) . .	21 [2]		„ „
× „ *sandbergi* Britton (*B. papyrifera* × *B. pumila* var. *glandulifera*) . .	31, 32 [3]		„ „
„ *davurica* Pall.	45 [3]		„ „
Alnus cordata (Lois.) Desf. var. *genuina* Regel . .	14 [4]		Wetzel, 1929.
„ *crispa* Pursh. var. *mollis* Fernald	14 [5]		Woodworth, 1929*c*.
„ *glutinosa* Gaertn. . . .	28 [5]		„ „
„ *glutinosa* var. *vulgaris* Spach.	14		Wetzel, 1929.
„ *incana* L..	14		„ „
„ *incana* (L.) Moench. . .	14 [5]		Woodworth, 1929*c*.
„ *japonica* Sieb. et Zucc..	14		Wetzel, 1929.
	28 [5]		Woodworth, 1929*c*.
„ *maritima* (Marsh.) Muhl.	14 [5]		„ „
„ *rubra* Bong. (*A. Washingtonia* Hort. Calmpth., *A. regana* Nutt., *A. maritima* Hort.).	14		Wetzel, 1929.
„ *rugosa* (Duroi) Spreng.	14 [6]		Woodworth, 1929*b*, *c*.
„ *subcordata* C. A. Mey .	14		Wetzel, 1929.
„ *viridis* (Chaix.) Lam. et D.C. (= *A. alnobetula* (Ehrh.) Hortig, *Betula viridis* Chaix. . .	14		„ „
FAGACEAE			
Fagus silvatica L.		22	Wetzel, 1929.

[1]) Meiosis normal.
[2]) Meiosis very abnormal with varying numbers of bivalents and univalents.
[3]) Meiosis very abnormal.
[4]) At metaphase 10 chromosomes were in a ring and 4 were within the ring.
[5]) Meiosis was normal.
[6]) Woodworth (1929*b*) found 28 chromosomes in the embryo-sac initial where no reduction followed. Parthenogenesis and polyembryony resulted. Woodworth (1929*c*) reported meiosis extremely abnormal.

FAGACEAE (continued)	n	2n	
Castanea crenata (*C. japonica*)	11		WETZEL, 1929.
„ *sativa* MILL. (*C. vesca*, *C. vulgaris*)	11		„ „
Quercus cerris		24	GHIMPU, 1929*g*.
„ *cerris* L.		22	WETZEL, 1929.
„ *coccifera*		24	GHIMPU, 1929*g*.
„ *coccinea* WANGG.	11		WETZEL, 1929.
„ *Dalechampii* (*Q. toza* GRISEB,)	11		„ „
„ *glandulifera* (*Q. dentata* var. *Alberti*)	11		„ „
„ *Ilex*		24	GHIMPU, 1929*g*.
„ *Koehnii* (*Q. Ilex* × *Q. sessilis?*)	11		WETZEL, 1929.
„ *Libani* OLIV.	11		„ „
„ *macranthera* FISCH. et MEY	11		„ „
„ *nigra* L.		22	„ „
„ *palustris*		24	GHIMPU, 1929*g*.
„ *pontica* K. KOCH	11		WETZEL, 1929.
„ *robur* L. p.p. (*Q. pedunculata*)	11		„ „
„ *robur* L.	12		HOEG, 1929.
„ *sessiliflora* MARTYN	12		„ „
„ *sessilis* EHRH. (*Q. sessiliflora* SALISB.)	11		WETZEL, 1929.
„ *Suber*	24		GHIMPU, 1929*g*.
„ „ Sno-Eg"	12 [1]		HOEG, 1929.
„ *sessiliflora* × *Q. robur*.	12 [1]		„ „
URTICALES			
MORACEAE			
Morus bombycis KOIDZ.	14 [2]		SINOTO, 1929*b*.
Cudrania triloba HANCE	28 [3]	„	„ „
Humulus japonicus	8, 9 [4]	16, 17	WINGE, 1929; KIHARA, 1929*a*.

[1]) There were present lagging chromosomes, supernumerary cells in the pollen tetrad and micro pollen grains, but to a less degree than in distinct intermediate forms between *Q. sessiliflora* × *Q. robur*.

[2]) An unequal pair of chromosomes and also a large geminus which occasionally divided into two unequal parts were distinguishable in the meiotic divisions of male flowers.

[3]) An unequal pair of chromosomes was distinguishable in the meiotic divisions of male flowers.

[4]) According to WINGE (1929) the complex is represented by ♀ $2n = 14 + 24$; ♂ $2n = 14 + 3x$; ♀ $n = 7 + x$; ♂ $n = 7 + x$ or $7 + 2x$. According to KIHARA (1929*a*) the sex chromosomes form a tripartite complex of x, y, and y_2, so that ♀ $2n = 14 + 2x$; ♂ $2n = 14 + y_1 + x + y_2$; ♀ $n = 7 + x$; ♂ $n = 7 + y_1 + y_2$. SINOTO (1929*b*) confirmed KIHARA's observations.

MORACEAE (continued)	n	2n	
Humulus japonicus S. et Z. . .		16, 17 [1]	TUSCHNJAKOWA, 1929*b*.
„		32, 34 [2]	„ „
	8, 9 [3]		SINOTO, 1929*b*.
Humulus lupulus	10 [4]	20	WINGE, 1929.
	$10,8+1_4$ [5]	20	SINOTO, 1929*a*.
Humulus lupulus L.	$8+1_4$ [5]		SINOTO, 1929*b*.
Cannabis sativa L.	10 [3]		„ „
POLYGONALES			
POLYGONACEAE			
RUMEX			
Rumex acetosa L.	7, 8 [6]	14, 15	SINOTO, 1929*b*.
„ *turcestanicus* PAULSEN.	ca. 20		EDMAN, 1929.
Section Eulapathum			
Rumex pulcher L.	10		SHIMAMURA, 1929.
Oxyria digyna (L.) HILL. . .	7 [7]	14	EDMAN, 1929.
Oxyria elatior R. BR.	21		„ „
Oxyria elatior R. BR. (from Berlin-Dahlem) . . .		14	„ „
„ *elatior* R. BR. (from Uppsala)		42	„ „
Rheum collinianum BAILL. . .	11		„ „
„ *Franzenbachii* MUENTH.	22		„ „
„ *officinale* BAILL. . . .	11		„ „
„ *rhaponticum* L.	22		„ „
„ *ribes* GRON.	22		„ „
„ *sanguineum* Hort. HALENS.	22		„ „
„ *Webbianum* ROYLE . .	22		„ „
„ *Wittrockii* K. E. LUNDSTR..	22		„ „
Antigonon leptopus HOOK et ARN.		48	„ „
Coccoloba uvifera L.		ca. 80	„ „
Reynoutria sachalinensis NAKAI	22		SINOTO, 1929*b*.

[1]) In diakinesis an XY pair of chromosomes was found.

[2]) Tetraploid cells were found with 32 or 34 chromosomes.

[3]) See foot-note 4 page 166.

[4]) According to WINGE (1929) the complex is represented by ♀ $2n = 18 + 2x$; ♂ $2n = 18 + x + y$; ♀ $n = 9 + x$; ♂ $n = 9 + x$ or $9 + y$.

[5]) The tetrapartite chromosome found along with 8 bivalents was considered to be the pair of sex chromosomes; therefore, ♀ $n = 8 + x_1 + x_2$; ♂ $n = 8 + x_1 + x_2$ or $8 + y_1 + y_2$ (SINOTO, 1929*a* and *b*).

[6]) At metaphase of meiosis of the male flowers there were 6 bivalent + 1 tetrapartite chromosome, and at anaphase 7 and 8 chromosomes, respectively. In female plants there were 14 somatic chromosomes and in male plants 15, so ♀ $2n = 12 + 2M$; ♂ $2n = 12 + m_1 + M + m_2$; ♀ $n = 6 + M$; ♂ $n = 6 + M$ or $6 + m_1 + m_2$.

[7]) 14 chromosomes were found in an embryo-sac-mother-cell.

	n	2n	
CENTROSPERMAE			
CHENOPODIACEAE			
Spinacia oleracea L.	6	12, 24 [1]	TUSCHNJAKOWA, 1929*b*.
	6		SINOTO, 1929*b*.
„ *oleracea* MILL. var. Japanese spinach. .	6		MAEDA & KATO, 1929.
AMARANTACEAE			
Celosia cristata L.	18		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
NYCTAGINACEAE			
Mirabilis Jalapa	ca. 27		TISCHLER, 1929*a*.
„ *longiflora*	ca. 27		„ „
Bouginvillaea glabra CHOISY .	10 [2]		COOPER, 1929.
PHYTOLACCACEAE			
Phytolacca acinosa ROXB. var. *Kaempferi* MAK.	18		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
CARYOPHYLLACEAE			
Silene viscosa		24	BRESLAWETZ, 1929.
Lychnis alba	12 [3]		LINDSAY, 1929.
Melandrium album L. [4] . . .	12	24	BRESLAWETZ, 1929.
Dianthus arenarius [5].	30		ROHWEDER, 1929.
„ *barbatus*	15		„ „
„ *carthusianorum* . . .	15		„ „
„ *collinus*	45		„ „
„ *deltoides*	15		„ „
„ *giganteus*.	15		„ „
„ *plumarius* [6]	15		„ „
„ *plumarius* [7]	45		„ „
„ *Séguiérii*	45		„ „
„ *Sternbergii*	45		„ „
„ *superbus*.	15		„ „
RANALES			
NYMPHEACEAE			
Nelumbo nucifera GAERTN. . .		16	MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.

[1]) Tetraploid cells with 24 chromosomes were found.
[2]) In heterotypic division heteromorphic chromosomes, a small h and a large H chromosome, occurred.
[3]) A pair of heterochromosomes was distinguished.
[4]) An unequal pair of chromosomes x and y were found in somatic and meiotic divisions of ♂ plants but in ♀ plants a pair of equal size x and x occurred.
[5]) Two races were studied (type and race C).
[6]) Of 6 races 4 had 15 chromosomes.
[7]) Of 6 races 2 had 45 chromosomes.

	n	2n	
RANUNCULACEAE			
Isopyrum biternatum (RAF.) T. & G.		14 [1]	SOROKIN, 1929.
Anemonella thalictroides (L.). SPACH		14 [2]	„ „
Clematis virginiana	8		LINDSAY, 1929.
Ranunculus abortivus L.		16 [3]	SOROKIN, 1929.
„ *acris* L. (normal hermaphrodite)	7		WHYTE, 1929*b*.
„ *acris* L. (♀)	7		„ „
„ *acris* L. (♂)	7		„ „
„ *acris* L. (abnormal)	7		„ „
„ *acris* L. (minus normal)	7		„ „
„ *acris* L. (normal × abnormal)	7		„ „
„ *Chius* D.C.		14 [4]	SOROKIN, 1929.
Thalictrum aquilegifolium.		14	KUHN, 1929.
BERBERIDACEAE			
Nandina domestica THUNB	10		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
MENISPERMACEAE			
Menispermum canadense	26		LINDSAY, 1929.
MAGNOLIACEAE			
Illicium anisatum	14		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
RHOEADALES			
PAPAVERACEAE			
Corydalis cava.	8		TISCHLER, 1929*a*.
Eschscholtzia californica CHAM.	6		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
CAPPARIDACEAE			
Capparis spinosa		38	KUHN, 1929.
CRUCIFERAE			
Heliophila pilosa LAM.	10		JARETZKY, 1929.
Lepidium perfoliatum L.	8		„ „
„ *sativum* L.	8		„ „
Biscutella auriculata L.	8		„ „

[1]) A pair of satellites were present.

[2]) The idiogram was represented by 2 (6I + 1I). The satellites were extremely small.

[3]) The idiogram was represented by 2 (3V + v + 3J + L[1]). The I chromosomes had satellites.

[4]) A comparatively large pair of chromosomes were present.

CRUCIFERAE (continued)	n	2n	
Coronopus procumbens GILIB. .	16		JARETZKY, 1929.
Sisymbrium supinum L. . . .	16		„ „
Cakile maritima	9		„ „
Carrichtera annua (L.) PRANTL.	8		„ „
„ *vella* D.C.	8		„ „
Succowia balearica (L.) MED. .	16		„ „
Thlaspi ceratocarpon (PALLAS) MURR.	7		„ „
Chorispora tenella D.C.	7		„ „
Myagrum perfoliatum L. . . .	7		„ „
Goldbachia laevigata (M.B.) D.C.	14		„ „
Calepina irregularis (Asso) THELL..	21		„ „
Brassica campestris L.	10		KARPECHENKO, 1929*b*.
„ *carinata* BRAUN. . .	17		„ „
„ *cernua* Coss.	18		MORINAGA, 1929*b*.
„ *cernua* var. *Karashi* .	18		FUKUSHIMA, 1929*c*.
„ *chinensis*	10		MORINAGA, 1929*c*.
„ *chinensis* L. (Komatsuna)	10		MORINAGA, 1929*b*.
„ *chinensis* L. var. *parachinensis* (Hakkei-Taisai)	10		„ 1929*a*, *b*.
„ *japonica* SIEB. (Mizuna)	10		„ 1929*a*, *b*.
„ *juncea* var. *Katsuona*.	18		FUKUSHIMA, 1929.
„ *napella*	19		MORINAGA, 1929*c*.
„ *napella* CHAIX. „Kotyosen"	19		MORINAGA, 1929*a*.
„ *napus L.*	18		KARPECHENKO, 1929*b*.
„ *oleracea* L.	9		KARPECHENKO, 1929*a*.
„ *oleracea* var. Successi-on	9		FUKUSHIMA, 1929.
„ *pekinensis* RUPR. . .	10		KARPECHENKO, 1929*b*.
„ *pekinensis* RUPR. „Hôtôren Kekkyû-hakusai"	10		MORINAGA, 1929*a*.
„ *Rapa* L. „Tokinasikabu".	10		„ „
„ *Rapa* L.	10		MORINAGA, 1929*b*.
„ *Brassica cernua* Coss. (*Karashina*) × *B. chinensis L.* (*Komatsuna*)	$10+8_I$	ca. 28	„ „

CRUCIFERAE (continued)	n	2n		
Brassica (continued)				
Brassica cernua Coss. (*Karashina*) × *B. chinensis* L. var. *parachinensis* (Hakkei-Taisai) .	$10+8_I$	ca. 28	MORINAGA,	1929*b*.
„ *cernua* Coss. (*Karashina*) × *B. japonica* SIEB. (Mizuna) . . .	$10+8_I$	ca. 28	„	„
„ *cernua* × *B. napella* .	$10+\frac{17_I}{2}$	ca. 37	„	1929*c*.
„ *cernua* Coss. (*Karashina*) × *B. Rapa* L. (fodder variety) . .	$10+8_I$	28	„	1929*b*.
„ *cernua* Coss (*Karashina*) × *B. Rapa* L. „Tokinasikabu" .	$10+8_I$	ca. 28	„	„
„ *cernua* var. *Karashi* × *Raphanus sativus* var. *Minowase* . . .	27_I [1]		„	„
„ *juncea* var. *Katsuona* × *Raphanus sativus* (an escape)	27_I [2]		FUKUSHIMA,	1929.
„ *napella* CHAIX. „Kotyosen" × *B. chinensis* var. *parachinensis*„ Hakkei-Taisai"	$10+\frac{9_I}{2}$	ca. 29	MORINAGA,	1929*a*
„ *napella* CHAIX. „Kotyosen × *B. japonica* SIEB. „Miduna" .	$10+\frac{9_I}{2}$	ca. 29	„	„
„ *napella* CHAIX. „Kotyosen × *B. pekinensis* RUPR. „Hôtôren-Kekkyû-hakusai . .	$10+\frac{9_I}{2}$	ca. 29	„	„
„ *napella* CHAIX. „Kotyosen × *B. Rapa* L. „Tokinasikabu" . .	$10+\frac{9_I}{2}$	ca. 29	„	„

[1]) In first division metaphase 27 scattered unpaired chromosomes were seen but in the second division anaphase 62—74 chromosomes were counted.

[2]) In second division anaphase though there might be 2—5 lagging chromosomes on the spindle, they passed undivided to the poles.

CRUCIFERAE (continued)	n	2n	
Brassica (continued)			
Brassica pekinensis RUPR. „Hô-tôren-kekkyû-hakusai × *B. napella* CHAIX. „Kotyosen" . . .	$10 + \frac{9_1}{2}$	ca. 29	MORINAGA, 1929*a*.
Raphanus raphanistrum L. .	9		KARPECHENKO, 1929*b*.
„ *sativus* L.	9		„ 1929*a*.
„ *sativus*	9		FUKUSHIMA, 1929.
„ *sativus* var. *Minowase*	9		„ „
„ *sativus* L. × *Brassica napus* L. F_1 .	$\frac{18}{2}$	18	KARPECHENKO, 1929*a*.
„ *sativus* L. × *Brassica napus* L. F_2 F_3 .	18	36	„ „
„ *sativus* (an escape) × *Brassica oleracea* var. Succession	18_1		FUKUSHIMA, 1929.
„ *sativus* L. × *Brassica oleracea* L. „*Raphanobrassica*"	18		KARPECHENKO, 1929*b*.
	18	36	„ and SHCHAVINSKAIA, 1929.
Raphanobrassica × *Brassica campestris* L. [1]). .	$5—6 + 18_1—16_1$		KARPECHENKO, 1929*b*.
„ × *Brassica carinata* BRAUN [1])	$9 — 17 + 17_1 — 1_1$		„ „
„ × *Brassica napus* L [1]).	36		„ „
„ × *Brassica oleracea* L. [2])		27	„ and SHCHAVINSKAIA, 1929.
„ × *Brassica pekinensis* RUPR. [1]) . .	28		KARPECHENKO, 1929*b*.
„ × *Raphanus raphanistrum* L. [1]) . . .	$9 + 9_1$		„ „
„ × *Raphanus sativus* L. [1])		27	KARPECHENKO and SHCHAVINSKAIA, 1929.

[1]) During meiosis irregular distribution of chromosomes to the daughter nuclei occurred.

[2]) During meiosis the chromosomes of *Brassica oleracea* were eliminated.

CRUCIFERAE (continued)	n	2n	
Draba cinerea	24		HEILBORN given by EKMAN, 1929.
„ *daurica*.	32		HEILBORN given by EKMAN, 1929.
„ *groenlandica*	32		HEILBORN given by EKMAN, 1929.
Matthiola bicornis D.C.	7		JARETZKY, 1929.
„ *incana*	7		„ „
„ *parviflora* R. BR. . .	7		„ „
„ *sinuata*	7		„ „
„ *sinuata glabra* var. *albiflora*	7		„ „
„ *Thessala* BOISS. et ORPH.	6	12	„ „
„ *tricuspidata* R. BR. .	7		„ „
„ *tristis* R. BR. . . .	6		„ „
„ *Valesiacae* J. GAY .	6		„ „
Bunias orientalis		14	HEITZ, 1929*b*.
„ *orientalis* L.	7	14	HÅKANSSON, 1929*b*.
ROSALES			
SAXIFRAGACEAE			
PHILADELPHUS			
Group 1 Gordoniani KOEHNE	13		BANGHAM, 1929.
Philadelphus confusus PIPER .	13		„ „
„ *Gordonianus* LINDL.	13		„ „
„ *Lewisii* PURSH. .	13		„ „
„ *monstrosus* REHD. (*P*? *Gordonianum* × *P. pubescens*)	13		„ „
„ *pubescens* LOIS. .	13		„ „
„ *pubescens* var. *intectus* A. H. MOORE	13		„ „
Group 2 Sericanthi REHD.			
Philadelphus Delavayi L. HENRY	13		„ „
„ *incanus* KOEHNE.	13		„ „
„ *Magdalenae* KOEHNE . . .	13		„ „
„ *purpurascens* REHD.	13		„ „
„ *sericanthus Rehderianus* KOEHNE	13		„ „

SAXIFRAGACEAE (continued)	n	2n	
PHILADELPHUS (continued)			
Group 2 Sericanthi REHD. (continued)			
Philadelphus subcanus KOEHNE	13		BANGHAM, 1929.
Group 3 Coronarii KOEHNE			
Philadelphus coronarius L. . .	13		„ „
„ *coronarius* var. *salicifolius* JACQUES	13		„ „
„ *Falconeri* SARG. (*P. coronarius* × *P. laxus*) . .	13		„ „
„ *floribundus* SCHRAD. (*P. coronarius* × ? *P. Gordonianus*) .	13		„ „
„ *maximus* REHD. (*P. pubescens* × *P. tomentosus*) .	13		„ „
„ *nepalensis* KOEHNE	13		„ „
„ *pekinensis* RUPR.	13		„ „
„ *satsumanus* MIQ.	13		„ „
„ *satsumanus* var. *nikoensis* . . .	13		„ „
„ *Schrenkii* var. *Jackii* KOEHNE	13		„ „
„ *tomentosus* WALL	13		„ „
„ *Zeyheri* SCHRAD. (*P. coronarius* × *P. inodorus* or *grandiflorus*) . .	13		„ „
Group 4 Speciosi KOEHNE			
Philadelphus floridus BEADLE .	13		„ „
„ *inodorus* L. . . .	13		„ „
„ *laxus* SCHRAD. .	13		„ „
„ *magnificus* KOEHNE (*P. grandiflorus* × *P. pubescens*)	13		„ „
Philadelphus splendens REHD. (*P. grandiflorus* × ? *P. Gordonianus*)	13		„ „

SAXIFRAGACEAE (continued)	n	2n	
PHILADELPHUS (continued)			
Group 5 Microphylli KOEHNE			
Philadelphus cymosus REHD. (*P. Lemoinei* × ? *P. grandiflorus*)	13		BANGHAM, 1929.
„ *cymosus* „*Conquette*"	13		„ „
„ *cymosus* „*Norma*"	13		„ „
„ *Lemoinei* LEMOINE (*P. microphyllus* × *P. coronarius*) . . .	13		„ „
„ *polyanthus* REHD. „*Favorite*" (*P. Lemoinei* × ? *P. insignis*) . .	13		„ „
„ *virginalis* REHD. (*P. Lemoinei* × ? *P. nivalis plenus*)	13		„ „
Group 6 Gemmati KOEHNE			
Philadelphus hirsutus NUTT. .	13		„ „
„ — „*Atlas*" LEMOINE . . .	13		„ „
„ — „*Girandole*" LEMOINE .	13		„ „
Hydrangea opuloides K. KOCH f. *Hortensis* MAXIM.	18		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Ribes aureum PURSH.		16	DARLINGTON, C. D., 1929*a*.
Ribes Gordonianum LEM.		16	DARLINGTON, 1929*a*.
„ *grossularia* LINN. . . .		16	„ „
„ *nigrum* LINN.		16	„ „
„ *oxyacanthoides* LINN. . .		16	„ „
„ *sanguineum* PURSH. . .		16	„ „
ROSACEAE			
Chaenomales lagenaria KOIDZ.	17		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Pyrus amurensis.		34	NEBEL, 1929*a*.
Malus amurensis	17	34	„ 1929*b*.
Pyrus baccata		34	„ 1929*a*.
Malus baccata BORKH.	17		„ 1929*b*.
Pyrus calleryana		34	„ 1929*a*.
Malus calleryana DECNE . . .		34	„ 1929*b*.

ROSACEAE (continued)	n	2n	
Pyrus coronaria		68±2	NEBEL, 1929*a*.
Malus coronaria MILL.		34, 68	„ 1929*b*.
„ *floribunda* SIEB.		34	„ „
„ *fusca* SCHNEID.	17		„ „
Pyrus glaucescens		68	„ 1929*a*.
Malus glaucescens REHD.	34		„ 1929*b*.
Pyrus halliana		34	„ 1929*a*.
Malus halliana KOEHNE		34	„ 1929*b*.
Pyrus ioensis		34	„ 1929*a*.
Malus ioensis BRIT.	17		„ 1929*b*.
„ *malus* BRIT.		34	„ „
Pyrus niedzweckyana		34	„ 1929*a*.
Malus niedzweckyana DIECK		34	„ 1929*b*.
Pyrus prunifolia		34	„ 1929*a*.
Malus prunifolia BORKH.		102	„ 1929*b*.
Pyrus prunifolia macrocarpa		34	„ 1929*a*.
Malus prunifolia macrocarpa	17		„ 1929*b*.
Pyrus rivularis		34	„ 1929*a*.
„ *Sargenti*		34	„ „
Malus Sargenti REHD.	17?		„ 1929*b*.
Pyrus Scheideckeri		34	„ 1929*a*.
Malus Scheideckeri ZABEL.	17	34	„ 1929*b*.
„ *Sieboldii* REHD.	17?		„ „
Pyrus Soulardi		34	„ 1929*a*.
Malus Soulardi BRIT.	17?		„ 1929*b*.
Pyrus spectabilis		51±1	„ 1929*a*.
Malus spectabilis BORKH.	17_3, 25	51	„ 1929*b*.
„ *sylvestris*	17?		„ 1929*b*.
Pyrus ussuriensis		34	„ 1929*a*.
Malus ussuriensis (Ba Li Hsiang × Hung Guar)		34	„ 1929*b*.
„ *ussuriensis* (seedling self pollinated)		34	„ 1929*b*.
Pyrus varieties:			
Allington Pippin		34	CRANE & LAWRENCE, 1929.
Annie Elizabeth		34	„ „ „
Beauty of Bath		34	„ „ „
Blenheim Orange		51	„ „ „ ; CRANE, 1929.
Bramley's Seedling		51	CRANE & LAWRENCE, 1929; CRANE, 1929.
Carlisle Pippin		34	CRANE & LAWRENCE, 1929.
Cox's Orange Pippin		34	„ „ „
Early Victoria		34	„ „ „

ROSACEAE (continued)	n	2n	
Pyrus varieties (continued)			
Genet Moyle		51	CRANE & LAWRENCE, 1929.
Grenadier		34	„ „ „
Irish Peach		34	„ „ „
Kentish Codlin		34	„ „ „
Keswick Codlin		34	„ „ „
Lane's Prince Albert		34	„ „ „
Lord Derby		34	„ „ „
Manx Codlin		34	„ „ „
Newton Wonder		34	„ „ „
Northern Spy		34	„ „ „
Oslins		34	„ „ „
Reinette Zuccamaglio		34	„ „ „
Rival		34	„ „ „
Winter Majetin		34	„ „ „
Worcester Pearman		34	„ „ „
Sorbus aria	17		SAX, 1929.
Sorbaronia Dipelii = (*Sorbus aria*) × (*Aronia melanocarpa*)	17		„ „
Sorbopyrus auricularis bulbiformis	$17+\frac{17_1}{2}$ [1]		„ „
Malus varieties:			
Adersleber Calville		34	NEBEL, 1929*c*.
Apfel aus Lunow		34	„ „
Baldwin		51	„ „
Calville Grossherzog von Baden		34	„ „
Charlamowsky		34	„ „
Cola		70 ± 2	„ 1929*a*.
Kola (Elk River (*ioensis?*) × *Charlamowsky*)	34	68	„ 1929*b*.
Der Böhmer		34	„ 1929*c*.
Dolgo		34	„ 1929*a*, *b*.
Eden		34	„ „ „
Geh — Dr. Oldenburg		34	„ 1929*c*.
Gelber Bellefleur		34	„ „
„ *Richard*		34	„ „
General von Hammerstein		34	„ „
Goldreinette von Blenheim		51	„ „
Gravensteiner		51	„ „

[1]) SAX considered this to be a back cross of a diploid egg cell of the F_1 hybrid with a pollen grain from *Pyrus*.

ROSACEAE (continued)	n	2n	
Malus varieties (continued)			
Gravensteiner von Hesam . .		51	NEBEL, 1929*c*.
„ „ *Palaisar*		51	„ „
Henze's Gravensteiner . . .		51	„ „
Koch's Gravensteiner		51	„ „
Lane's Prinz Albert		51	„ „
Lesans Calville		34	„ „
Mank's Küchenapfel		34	„ „
McIntosh	17	34	„ 1929*b*.
		34	„ 1929*a*.
Minister von Hammerstein .		34	„ 1929*c*.
Ontario		34	„ „
Red Astrachan		34	„ 1929*a*.
Roter Astrachan	17	34	„ 1929*b*.
Red Siberian Crab [1]		34	„ 1929*a*.
„ „ „ (*Niles*) .	16+1 [2]	34	„ 1929*b*.
„ „ „ (*Rodgers*)	17		„ „
Ribston's Pepping		51	„ 1929*c*.
Roter Gravensteiner		51	„ „
„ *Jungfernapfel*		34	„ „
Schleibnitzer Gravenstein . .		51	„ „
Schöner von Boskoop		51	„ „
Sommerrambour		34	„ „
Spätblühender Taffetapfel .		34	„ „
Weidner's Goldreinette . . .		34	„ „
Winesap		34	„ 1929*a*.
	17		„ 1929*b*.
Winesap (Seedling)		ca. 35	„ 1929*b*.
Yellow Newtown		34	„ 1929*a*.
	17	34	„ 1929*b*.
Zwanzig Unzenapfel		34	„ 1929*c*.
Apple stocks			
Doucin (Malling Type II) .		34	CRANE & LAWRENCE, 1929.
Jaune de Metz (Malling Type IX)		34	„ „ „
Nonsuch (Malling Type VI) .		34	„ „ „
Old English Broadleaf (Malling Type I)		34	„ „ „
Eriobotrya japonica LINDL. . .	17		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Rubus rusticanus inermis . . .		14	CRANE & LAWRENCE, 1929; CRANE, 1929.

[1]) Varieties from two different localities were examined.
[2]) This was a very small chromosome.

ROSACEAE (continued)	n	2n	
Rubus (continued)			
Rubus thyrsiger		28	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ — „*Laxtonberry*"		49	DARLINGTON, 1929*c*; CRANE, 1929.
„ — var. „*Lloyd George*"		14	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ — „*Loganberry*" .		42	DARLINGTON, 1929*c*; CRANE, 1929.
„ — „*Mahdi*" . . .		21	DARLINGTON, 1929*c*; CRANE, 1929.
„ — „*Superlative*" .		14	DARLINGTON, 1929*c*; CRANE, 1929.
„ — „*Veitchberry*" .		28	DARLINGTON, 1929*c*; CRANE, 1929.
„ *rusticanus inermis* × *R. thyrsiger*		21	CRANE & LAWRENCE, 1929; CRANE, 1929.
		28	CRANE & LAWRENCE, 1929; CRANE, 1929.
Fragaria bracteata		14	YARNELL, 1929*a*.
„ *Californica*		14	„ „
„ *chiloensis*		56	CRANE, 1929.
„ *collina* EHRH. . . .		14	YARNELL, 1929*a*.
„ *Duchesnea*		14	„ „
„ *elatior*		42	CRANE, 1929.
„ *maxima*		14	YARNELL, 1929*a*.
„ *mexicana*		14	„ „
„ *nilgerrensis* SCHLECHT		14	„ „
„ *vesca*		14	„ „ ; CRANE, 1929.
„ *virginiana*		56	CRANE, 1929.
„ sp. (F. P. I. 64856) from Manchuria . .		14	YARNELL, 1929*a*.
„ sp. (429) from Hawaii		14	„ „
„ *bracteata* × *F. vesca rosea*	14		ICHYIMA, 1926.
(*F. bracteata* × *F. vesca rosea*) (*F. bracteata* × *F. vesca rosea*)		28 [1]	YARNELL, 1929*b*.
F. bracteata × (*F. bracteata* × *F. vesca rosea*) (*F. bracteata* × *F. vesca rosea*)		ca. $\frac{21}{2}$	„ „

[1] Seven such tetraploids were produced.

ROSACEAE (continued)	n	2n	
Fragaria (continued)			
F. vesca × (*F. bracteata* × *F. vesca rosea*) (*F. bracteata* × *F. vesca rosea*)		ca. $\frac{21}{2}$[1]	YARNELL, 1929*b*.
(*F. bracteata* × *F. vesca rosea*) × *Fragaria* —? F. P. I. 64856 (from China)		ca. $\frac{21}{2}$[1]	„ „
(*F. bracteata* × *F. vesca rosea*) × *F. collina*		ca. $\frac{21}{2}$[1]	„ „
Potentilla alba	7		TISCHLER, 1929*a*.
	14		„ 1929*b*.
„ *anserina*	14		„ „
„ *aurea*	7		„ 1929*a*.
	ca. 28		„ 1929*b*.
„ *chinensis* SER. . . .	ca. 28		SHIMOTOMAI, 1929.
„ *fragarioides* L. . . .		14	„ „
„ *grandiflora*	14		TISCHLER, 1929*b*.
„ *Kleiniana* WIGHT et ARN.		14	SHIMOTOMAI, 1929.
„ *matsumurae* WOLF. .		28	„ „
„ *multifida*	7		TISCHLER, 1929*b*.
„ *nipponica* WOLF. . .		28	SHIMOTOMAI, 1929.
„ *nitida*	7		TISCHLER, 1929*b*.
„ *opaca* L. (from Dresden)	14		„ 1929*a*.
„ *opaca* L. (from Lübeck)	7		„ „
„ *opaca*	7, 14		„ 1929*b*.
„ *rupestris*	7		„ 1929*b*.
„ *villosa* (Typ.) . . .	7		„ „
„ *verna* L. & P. . . . *opaca* L. (= *P. Tabernaemontani* ASCHERS × *P. rubens* LIMM.)	$7+\frac{14}{2}$		„ 1929*a*.
Rosa acicularis LINDL.	21		ERLANSSON, 1929.
„ *acicularis* var. *bourgeauiana*	21		„ „

[1]) In the buds the chromosomes usually arranged themselves in groups of 10 disomes + an unpaired chromosome. Sometimes 3 groups of 4, 1 group of 3 and 3 groups of 2 chromosomes appeared. At the second metaphase 10 and 11 chromosomes were found most frequently.

ROSACEAE (continued)	n	2n		
Rosa (continued)				
Rosa acicularis var. *lacorum* [1])	21&28		ERLANSSON,	1929.
„ *acicularis* var. *nipponensis*	7		„	„
„ *acicularis* var. *rotunda* .	21		„	„
„ *acicularis* var. *sayiana* [2])	21		„	„
„ *acicularioides*	7	14	„	„
„ *alcea*	14		„	„
„ *aldersonii*	14		„	„
„ *arkansana*	14		„	„
„ *blanda* AIT. [3])	7		„	„
„ *blanda glandulosa* . . .	7	14	„	„
„ *blanda glandulosa* (seedlings) [4])	7, 8	14, 15,16,	„	„
„ *blanda* var. *hermanni* . .		14	„	„
„ *blanda* var. *hispida* [5]) . .	7		„	„
„ *brachycarpa*	14		„	„
„ *bracteata* WENDL. . . .	7		„	„
„ *bushii* RYDB.	14		„	„
„ *butleri* RYDB.	21		„	„
„ *Californica*	14		„	„
„ *carolina* L. [2])	14		„	„
„ *carolina* var. *litoralis* . .	14		„	„
„ *cinnamomea* L.	7		„	„
„ *deamii*	14		„	„
„ *engelmanni* [6])	21		„	„
„ *fendleri* CRÉPIN [2]). . . .	7		„	„
„ *foliolosa alba* [2])	7		„	„
„ *granulifera* RYDB. . . .	7		„	„
„ *gymnocarpa* NUTT. . . .	7		„	„
„ *hypoleuca* W. & S. . . .	7	14	„	„
„ *lyoni* [3])	14		„	„
„ *macdougalli*	21		„	„
„ *macounii* GREENE . . .	7	14	„	„
„ *michiganensis*	7		„	„
„ *myriantha*	14	28	„	„
„ *nutkana* PRESL.	21		„	„

[1]) The specimen from Michigan had n = 21 and that from Alaska had n = 28.
[2]) Two different collections gave the same number.
[3]) Three different collections gave the same number.
[4]) 5 of 9 seedlings showed n = 7, 2 showed 2n = 14, while one showed n = 8 and 2n = 16 and the other n = 7, 8 and 2n = 15.
[5]) Five different collections gave the same number.
[6]) Six different collections gave the same number.

ROSACEAE (continued)	n	2n	
Rosa (continued)			
Rosa obovata	14		ERLANSSON, 1929.
„ *palustris* MARSH.	7		„ „
„ *palustris* var. *inermis* . .	7		„ „
„ *petiolata*	14		„ „
„ *pisocarpa* A. GRAY . . .	7		„ „
„ *puberulenta* RYDB. . . .	7		„ „
„ *pyrifera* RYDB.	7, 8	14, 16	„ „
„ *ratonensis*	14		„ „
„ *relicta*	14		„ „
„ *rudiuscula* [1])	14	28	„ „
„ *salicetorum*	7		„ „
„ *schuetteana*	7		„ „
„ *serrulata* RAF. [2])	14	28	„ „
„ *setigera* MICHX	7		„ „
„ *spaldingii* [3])	21		„ „
„ *subblanda* RYDB.	7		„ „
„ *subglauca*	14	28	„ „
„ *subserrulata* [4])	7, 14		„ „
„ *suffulta* [5])	14		„ „
„ *suffulta* var. *valida* . . .	14		„ „
„ *underwoodii* RYDB. . . .	21		„ „
„ *ultramontana* WATS. . .	7		„ „
„ *virginiana* [1])	14		„ „
„ *woodsii* LINDL. [6])	7	14	„ „
„ „Konrad Ferdinand Meyer".	14		HAASE-BESSELL, 1929.
? „ *blanda* × *R. carolina* . .	$7+7_{\frac{1}{2}}$	21	ERLANSSON, 1929.
„ *rugosa* × ?*R. blanda* (× *R. tetonkaha*)	7		„ „
? „ *virginiana* × *R. carolina*	$7+7_{\frac{1}{2}}$	21	„ „
Prunus avium varieties:			
Büttners späte rote Knorpelkirsche	8		LINDENBEIN, 1929.
Flamentiner	8		„ „
Frühe Französische	8		„ „

[1]) See foot-note 3 page 19.
[2]) See foot-note 2 page 19.
[3]) Five different collections gave the same number.
[4]) Of the two collections one from Texas showed n = 7 and one from Arkansas n = 14.
[5]) Eight different collections gave the same number.
[6]) Four different collections gave the same number.

ROSACEAE (continued)	n	2n	
Prunus avium varieties (continued)			
Frühreste der Mark	8		LINDENBEIN, 1929.
Frühe Werder	8		„ „
Kassins Frühe	8		„ „
Kunzes Kirsche	8		„ „
Maibigarreau	8		„ „
Rote Maikirsche	8		„ „
Schneiders späte rote Knorpelkirsche	8		„ „
Weisse Spanische	8		„ „
Prunus avium		16	CRANE, 1929.
„ *cerasifera*		16	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ *domestica*		48	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ *insititia*		48	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ *laurocerasus* [1]		170–180	MEURMAN, 1929*b*.
„ *mahaleb*		16	CRANE, 1929.
„ *persica*		16	„ „
„ *spinosa*		32	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ *domestica* × *P. cerasifera*		32	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ *insititia* × *P. spinosa*		40	CRANE & LAWRENCE, 1929; CRANE, 1929.
„ *cerasus* × *P. avium*		32	CRANE, 1929.
LEGUMINOSAE			
Acacia arabica		±52&±104	GHIMPU, 1929*b*, *e*.
„ *cyanophylla*		26	„ „ „
„ *dealbata*		26	„ „ „
„ *decurrens*		26	„ 1929*e*.
„ *eburnea*		±52&±104	„ „
„ *Farnesiana*		±52&±104	„ 1929*b*, *e*.
„ *horrida*		±52&±104	„ „ „
„ *longifolia*		26	„ 1929*e*.
„ *nilotica*		±52&±104	„ 1929*b*, *e*.
„ *podalyraefolia*		26	„ 1929*e*.
„ *saligna*		26	„ „
„ *scorpioides* var. *astringens*		52,104&208	„ „

[1] No haploid number, in the strict sense of the word, exists because segregation is variable and gametes with various numbers of chromosomes were found.

LEGUMINOSAE (continued)	n	2n	
Acacia (continued)			
Acacia scorpioides var. *pubescens*		52&104	GHIMPU, 1929*e*.
Cassia occidentalis L.	13		MUTO, 1929.
MEDICAGO			
Section Falcago			
Medicago sativa		32	GHIMPU, 1929*d*.
Section Lupularia			
Medicago lupulina		16	„ „
Section Spirocarpos			
Medicago disciformis		16	„ „
„ *Echinus*		16	„ „
„ *Helix*		16	„ „
„ *maculata*		16	„ „
„ *minima*		16	„ „
„ *orbicularis*		16	„ „
„ *rigidula*		16	„ „
„ *scutellata*		32	„ „
„ *sphaerocarpa*		16	„ „
„ *Tenoreana*		16	„ „
„ *tornata*		16	„ „
„ *truncatula*		16	„ „
Psorolea bituminosa	ca. 20		KREUTER, 1929.
„ *glandulosa*	ca. 20		„ „
„ *palaestina*	ca. 20		„ „
Indigofera Gerardinia	24		„ „
Galego officinalis	8		„ „
„ *orientalis*	8		„ „
Calophaca wolgarica	8		„ „
Robinia hispida [1]			„ „
„ *pseudacacia*	10		„ „
Astragalus boeticus	8		„ „
„ *desamus*	8		„ „
„ *falcatus*	8		„ „
„ *galegiformis*	8		„ „
„ *monspessulanus*	8		„ „
„ *vulpinus*	8		„ „
Biserrula pelecinus	8		„ „
Glycyrrhiza echinata	8		„ „
Cicer arietinum		14	RAU, 1929*b*.
Vicia faba L. var. *megalosperma*	6		MAEDA & KATO, 1929.

[1]) Irregular divisions suggested that this was a hybrid.

LEGUMINOSAE (continued)	n	2n	
Pisum sativum	7 [1])		HÅKANSSON, 1929*a*.
„ *sativum*	7		RICHARDSON, 1929.
„ *sativum* sterile (race from Tibet × cultivated)	14 [2])		„ „
	2		
Phaseolus chrysanthos SAV. var. *Beni-adzuki* . . .		22	MUTO, 1929.
„ *Chiba-urumi*		22	„ „
„ *Dainagon*	11	22	„ „
„ *Kensaki*	11	22	„ „
„ *Kon adzuki*	11	22	„ „
„ *Kuro-adzuki*	11	22	„ „
„ *Maruba*	11	22	„ „
„ *Midoriyogou*	11	22	„ „
„ *Natsu-adzuki*	11	22	„ „
„ *Shirosaya-aka*		22	„ „
„ *Wase-maruba*	11	22	„ „
„ *Yogore*	11	22	„ „
„ *multiflorus*.		22	KUHN, 1929.
„ *mungo*		24	RAU, 1929*b*.
„ *radiatus*		24	„ „
„ *vulgaris*		22	KUHN, 1929.
Vigna catiang [3])		24	RAU, 1929*b*.
„ *catiang* var. *sinensis* . .		24	„ „
Dolichos biflorus		24	„ „
„ *Lab-lab*		24	„ „
GERANIALES			
LINACEAE			
Linum angustifolium HUDS. [4])	15	30–32	SIMONET, 1929*e*.
„ *perenne*	9		INOUYE, 1929.
„ *usitatissimum*.	6		„ „
„ *usitatissimum* L. [5]) . .	15	30–32	SIMONET, 1929*e*.
ERYTHROXYLACEAE			
Erythroxylum Coca.		24	HEITZ, 1929*a*.
Xanthoxylum piperitum DC. .	35 [6])		SINOTO, 1929*b*.

[1]) In some cases the 14 chromosomes were arranged as 5 double chromosomes on the equatorial plate, 4 chromosomes having joined to form one large ring.

[2]) In heterotypic division the chromosomes were arranged as a ring of 4 + 5 pairs.

[3]) Two different strains, one a low herb and the second a larger form, showed the same number of chromosomes.

[4]) 4 lots of this species were examined.

[5]) 35 varieties of this species were examined.

[6]) In meiotic divisions of male flowers one large chromosome, behaving as a univalent, and a seemingly unequal pair were observed.

	n	2n	
RUTACEAE			
Ruta patavina L.	9	18	CAPPELLETTI, 1929.
Citrus — „*Fujii Wase Satsuma*"	9		NAKAMURA, 1929.
„ — „*Owari Satsuma*" . .	9 [1])		„ „
„ — „*Wase Satsuma*" . .	9 [1])		„ „
„ — „*Yamada Wase Satsuma*"	9		„ „
EUPHORBIACEAE			
Daphniphyllum macropodum MIQ.	16 [2])		SINOTO, 1929*b*.
Mercurialis annua ♂	8 [3])		SZTAJGERWALDOWNA, 1929.
„ *leiocarpa* SIEB. et ZUCC.	24		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
SAPINDALES			
ACERACEAE			
Acer negundo L.	13 [4])		SINOTO, 1929*b*.
HIPPOCASTANACEAE			
Section Euaesculus			
Aesculus glabra WILLD. . . .	20		SKOVSTED, 1929.
Aesculus Hippocastanum L. .	20		„ „
Section Pavia			
Aesculus flava AIT. (*A. lutea* WANGENTT. *A. octandra* MARSH.) . . .	20		„ „
„ *pavia* L. (*Pavia rubra* POIR.)	20		„ „
Section Macrothyrsus			
Aesculus parviflora WALT. (*A. Macrostachya* MICHX.) . .	20		„ „
Hybrids:			
A. mutabilis Hort. = ? (*A. flava* × *A. pavia*)	20		„ „
A. carnea WILLD. (*A. rubicunda* LODD.) (*A. Hippocastanum* × *A. Pavia*)	40		„ „
BALSAMINACEAE			
Impatiens Holstei		16	HEITZ, 1929*a*.

[1]) The behaviour of the reduction division of this species showed distinct irregularity especially in the heterotypic division. In homoeotypic division abnormalities were more seldom.

[2]) An unequal pair of chromosomes was distinguishable in meiotic divisions of the male flowers.

[3]) The chromosome complex is described as 7 + 2n.

[4]) An unequal pair of chromosomes was not always clearly distinguishable in meiotic divisions of male flowers.

BALSAMINACEAE (continued)	n	2n	
Hydrocera trifoliata		16	HEITZ, 1929*a*.
Balsamina hortensis	7	14	DE SOUZA VIOLANTE, 1929.
RHAMNALES			
RHAMNACEAE			
Zizyphus vulgaris LAM. var. *inermis* BUNGE	12		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
VITACEAE			
Vitis aestivalis	probably 19		KOBEL, 1929*a*
„ *amurensis*		38	NEBEL, 1929*a*, *c*; SAX, 1929*b*.
„ *arizonica*		38	CHRISTOFF, 1929.
„ *Berlandieri*	19 [1])		KOBEL, 1929*a*.
„ *Berlandieri* PLANCH. . .	19 [1])		„ 1929*b*.
„ *bicolor*	ca. 20		DORSEY, 1914.
„ *Californica*	19 [2])		KOBEL, 1929*a*.
„ *Californica* BENTH. . .	19 [2])		„ 1929*b*.
„ *cinerea* ENGELM. . . .	19		„ 1929*a*, *b*
„ *cinerea*		38	SAX, 1929*b*.
„ *coignitiae*		38	NEBEL, 1929*a*, *c*.
„ *cordifolia*	probably 19		KOBEL, 1929*a*.
		30	CHRISTOFF, 1929.
„ *coriacea*		30	„ 1929.
„ *doaniana*		38	NEBEL, 1929*a*, *c*.
„ *Kaempferi*		38	SAX, 1929*b*.
„ *Labrusca* [3])		38	NEBEL, 1929*a*, *c*; SAX, 1929*b*.
„ *Labrusca* L.	19		KOBEL, 1929*b*.
„ *Labrusca* var. *Adirondac* .	19		HIRAYANAGI, 1929.
„ *Labrusca* var. *Belle of Pipe*		38	SAX, 1929*b*.
„ *Labrusca* var. *Campbell's Early*	19		HIRAYANAGI, 1929.
„ *Labrusca* var. *Concord* . .	20		DORSEY, 1914.
„ *Lincecumii*		38	CHRISTOFF, 1929.
„ *Longii*		38	SAX, 1929*b*.
„ *monticola*		38	CHRISTOFF, 1929.
„ *riparia*	19 [4])		KOBEL, 1929*a*.

[1]) This determination was made from the observation of hybrid *V. Berlandieri* × *riparia* 420 A.M.G.

[2]) This determination was made from the observation of hybrid *V. rupestris* × *V. californica*.

[3]) Various collections were examined (NEBEL, 1929*c*).

[4]) This determination was made from the observation of hybrids.

VITACEAE (continued)	n	2n	
Vitis (continued)			
Vitis riparia MICH. (= *V. vulpina* L.)	19		KOBEL, 1929*b*.
„ *riparia* var. *Gloire de Montp.*	19		NEGRUL, 1929.
„ *riparia grand glabre*	19		KOBEL, 1929*b*; NEGRUL, 1929.
„ *riparia* var. *Scuppernon*	19		NEGRUL, 1929.
„ *rotundifolia*		40	SAX, 1929*b*.
„ *rubra*		38	CHRISTOFF, 1929.
„ *rupestris*		38	NEBEL, 1929*a*, c; SAX, 1929*b*.
„ *rupestris* var. *du Lot*	19	38	NEGRUL, 1929.
„ *rupestris* SCHEELE var. *metallica*	19		KOBEL, 1929*a*.
„ *rupestris* SCHEELE	19		„ 1929*b*.
„ *Solonis*		38	CHRISTOFF, 1929.
	19 [1])		KOBEL, 1929*a*.
„ *Treleasi*		38	SAX, 1929*b*.
„ *vinifera*	ca. 20 [2])		DORSEY, 1914.
		38, 40 [3])	SAX, 1929*b*.
„ *vinifera* var. *Alemichak*	19		NEGRUL, 1929.
„ *vinifera* var. *Black Hamburg*	19		HIRAYANAGI, 1929.
„ *vinifera* var. *Blauer Burgunder*	19		KOBEL, 1929*b*.
„ *vinifera* var. *Blauer Burgunder* (= *Klävner* = *Pinot noir*)	19		KOBEL, 1929*a*.
„ *vinifera* var. *Charbora*		38	SAX, 1929*b*.
„ *vinifera* var. *Chas. Ciotat.*		38	„ „
„ *vinifera* var. *Cinsaut*		38	„ „
„ *vinifera*, var. *Classeias rose*	19	38	NEGRUL, 1929.
„ *vinifera* var. *Grand noir d. la C.*		38	„ 1928.
„ *vinifera* var. *Grüner Sylvaner*	19		KOBEL, 1929*b*.
„ *vinifera* var. *Grüner Sylvaner* (= *Oesterreicher*).	19		„ 1929*a*.
„ *vinifera* var. *Gutedel*	19		„ 1929*b*.
„ *vinifera* var. *Gutedel* (= *Chasselas*)	19		„ 1929*a*.

[1]) See foot-note 4 page 187.

[2]) This determination was made from observation of the hybrid *V. labrucsa* × *V. vinifera* var. *Barry*.

[3]) One plant from China showed 40 chromosomes.

VITACEAE (continued)	n	2n	
Vitis (continued)			
Vitis vinifera var. *Koshu* . . .	19		HIRAYANAGI, 1929.
„ *vinifera* var. *Koshu-sanjaku*	19		„ „
„ *vinifera* var. *Malaga bleu.*	19		NEGRUL, 1929.
„ *vinifera* var. *Muscat Hamburg*	19		„ 1929.
		38	SAX, 1929*b*.
„ *vinifera* var. (*Riesling* × *Sylvaner*) = „*Müller Thurgau-rebe*".	19		KOBEL, 1929*a*, *b*.
„ *vinifera* var. *Otzhanure Sapere*	19		NEGRUL, 1929.
„ *vinifera* var. *Plávai* . . .	19	38	„ „
„ *vinifera* var. *Rka-tzitel* (*Kahetia*)	19		„ „
„ *vinifera* var. *Rka-tzitel* (*Kutais*)	19		„ „
„ *vinifera* var. *Ryugan* . .	19		HIRAYANAGI, 1929.
„ *vinifera* var. *Saltaniana* .	19		„ „
„ *vinifera* var. *Sercksia* . .	19		NEGRUL, 1929.
„ *vinifera* var. *Yenshin* . .	19		HIRAYANAGI, 1929.
„ *vulpina*	20		DORSEY, 1914.
	19		HIRAYANAGI, 1929.
		38	NEBEL, 1929*c*; SAX, 1929*b*.
Vitis varieties:			
Andersonii (*vulpina* × *Kaempferi*		38	SAX, 1929*b*.
Bacchus		38	NEBEL, 1929*a*, *c*.
Barry (*V. labrusca* × *V. vinifera*)	20		DORSEY, 1914.
Brighton		38	NEBEL, 1929*a*, *c*.
Brighton (*Concord* × *Diana Hamburg*)	20		DORSEY, 1914.
Catawba		38	NEBEL, 1929*a*, *c*.
Champinii (*candicans* × *rupestris* or *Berlandieri*) . .		38	SAX, 1929*b*.
Charas	20		PARÄUSKAJA, 1929 [1]).
Clinton		38	NEBEL, 1929*a*, *c*.
Clinton (*riparia*, *labrusca*) .		38	SAX, 1929*b*.
Couderc 12	19		NEGRUL, 1929.

[1]) As reported by NEGRUL (1929) — PARÄUSKAJA (1929). Proc. U.S.S.R. Congress Genetica, Plant & Animal Breeding.

VITACEAE (continued)	n	2n	
Vitis varieties (continued)			
Couderc 7120 (*lincecumi, rupestris, vinifera*)		38	NEGRUL, 1929.
Daroi	20		PARÄUSKAJA, 1929 [1]).
Delaware	19		HIRAYANAGI, 1929.
Delaware (*labrusca, Bourguiniana, vinifera*)		38	SAX, 1929*b*.
Dunkirk		38	NEBEL, 1929*a, c*.
Fredonia		38	„ „
Iona	19		HIRAYANAGI, 1929.
Katta-Kuran	20		PARÄUSKAJA, 1929 [1]).
Keuka		38	NEBEL, 1929*a, c*.
Moore Early		38	„ „
Muskat		38	„ „
Muskat gigas		76	„ „
Nemrang	20		PARÄUSKAJA, 1929 [1]).
Niagara		38	NEBEL, 1929*a, c*.
Niagara (*labrusca, vinifera*) .		38	SAX, 1929*b*.
Ontario		38	NEBEL, 1929*c*.
Portland		38	„ „
Seibel I	19		NEGRUL, 1929.
Seibel 28 (*rupestris, lincecumi vinifera*)	19		„ „
Sheridan		38	NEBEL, 1929*a, c*.
Slavinii (*vulpina* × *Leconti ana*)		38	SAX, 1929*b*.
Sultanina		38	NEBEL, 1929*a, c*.
Sultanina gigas		76	„ „
Washington	19		HIRAYANAGI, 1929.
Vitis aestivalis × *V. riparia* (*Azemar* MDT.) [2]) . . .	probably 19		KOBEL, 1929*a*.
„ *Berlandieri* × *V. riparia*.	19		NEGRUL, 1929.
„ *Berlandieri* × *V. riparia* 420 A. M. G.	19		KOBEL, 1929*a, b*.
„ *cordifolia* × (*V. riparia* × *rupestris*) 13 A. [2]) . .	probably 19		„ 1929*a*.
„ *riparia* × *V. rupestris* 3309 COUD.	19	38	NEGRUL, 1929.
„ *riparia* × *V. rupestris* 3310 COUD.	19		„ „

[1]) See foot-note page 189.

[2]) No clear plates of this hybrid were seen. Reduction division proveeded in a normal way.

VITACEAE (continued)	n	2n	
Vitis (continued)			
Vitis riparia × *V. vinifera* var. *Gamay* 595 *Oberlin* . .	19		KOBEL, 1929*a*, *b*.
„ *rupestris* × *V. aestivalis* 12A [1])	probably 19		„ 1929*a*.
„ *rupestris* × *V. Californica*	19		„ 1929*a*, *b*.
„ *rupestris* × *Chasselas* rose COUD. 4401	19		NEGRUL, 1929.
„ *Solonis* × *V. riparia* 1616 COUD. [1])	probably 19		KOBEL, 1929*a*.
„ *vinifera* var. *Cabernet* × *V. Berlandieri* 333 E. M.	19		„ 1929*a*, *b*.
„ *vinifera* var. *Mourvèdre* × *V. rupestris* 1202 COUD.	19		„ 1929*a*, *b*.
Ampelopsis acontifolia		40	CHRISTOFF, 1929.
Ampelopsis brevipedunculata .		40	SAX, 1929*b*.
Ampelopsis cordata		40	„ „
Ampelopsis humulifolia. . . .		40	„ „
Ampelopsis serjaniaefolia . .	20	40	CHRISTOFF, 1929.
Ampelopsis vitifolia		40	„ „
Parthenocissus quinquefolia . .		40	SAX, 1929*b*.
Parthenocissus tricuspidata . .		40	„ „
Parthenocissus vitacea		40	„ „
MALVALES			
MALVACEAE			
GOSSYPIUM			
Acclimatized American cottons			
Gossypium hirsutum MILL.			
C. O. I. (from Cotton Specialist Gov't. of Madras) . . .	26		BANERJI, 1929.
440 (from Gov't. Expt. Sta. Dhulia-Cambodia cotton) .	26		„ „
4F. (Punjab selection of American cotton)	26		„ „
Buri (from Central Provinces)	26		„ „
Herbaceum cottons			
Gossypium herbaceum LINN.			
Hagari 25 (from Cotton Specialist Gov't. of Madras) .	13		„ „

[1]) No clear plates of this hybrid were seen. Reduction division proceeded in a normal way.

MALVACEAE (continued)	n	2n	
Gossypium herbaceum LINN. (continued)			
Kumpta (from Cotton Botanist, Mysore Dept. of Agr.)	13		BANERJI, 1929.
Mysore Local (*G. herbaceum* var. nov. *melanosperma*) .	13		„ „
Dharwar I (from Gov't. Expt Sta. Dharwar)	13		„ „
Broach No. 6 (from Bombay Dept. Agr. Poona) . . .	13		„ „
Goghari (A. 26) (from Bombay Dept. Agr. Poona) .	13		„ „
I. A. *Cylindrical Boll* (from Bombay Dept. Agr. Poona)	13		„ „
I. A. *Long Boll* (from Bombay Dept. of Agr. Poona)	13		„ „
Wagad (8) (from Bombay Dept. Agr. Poona) . . .	13		„ „
1027 *A. L. F.* (from Bombay Dept. Agr. Poona) . . .	13		„ „
The Indicum cottons			
Gossypium indicum LAMK.			
Bani (Hyderabad) (from the Dept. Agr. Hyderabad)	13		„ „
Bani (Nagpur) (from the botanist to C. P. Gov't. Nagpur)	13		„ „
Mungari 274 (from the Expt Sta. Hagari)	13		„ „
Nandayal 14 (from the cotton specialist, Gov't. Madras).	13		„ „
Goindicum var. nov. *Mollisoni* (Gammie) from Punjab Dept. Agr.	13		„ „
The Neglectum cottons			
Gossypium neglectum TOD.			
Gossypium neglectum var. nov. *rosea* [1]) (GAMMIE) . . .	13		„ „
Gossypium neglectum sub var. nov. *Malvensis* (GAMMIE)[2]) .	13		„ „

[1]) From Gov't. Expt. Station Dharwar.
[2]) From Economic Botanist to C. P. Gov't. Nagpur.

MALVACEAE (continued)	n	2n	
Gossypium neglectum TOD. (continued)			
Gossypium neglectum var. nov. *vera* (GAMMIE) [1] . .	13		BANERJI, 1929.
Gossypium neglectum subvar nov. *cutchica* (GAMMIE) [1] .	13		„ „
Gossypium neglectum subvar. nov. *Kathiararensis* (GAMMIE) [2]	13		„ „
Gossypium neglectum (naked seeds) [3]	13		„ „
W. N. 27 (selection of *neglectum roseum*)	13		„ „
Wagale (yellow flowered) [4] .	13		„ „
Wagale C. (pale yellow-flowered) [5]	13		„ „
Gossypium arboreum WATT [6]	13		„ „
„ *arboreum* var. *sanguinea* WATT [6]	13		„ „
„ *cernuum* TOD. [2].	13		„ „
„ *obtusifolium* GAMMIE (Nadam) [7].	13		„ „
PARIETALES			
THEACEAE			
Thea sinensis L.	15		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
VIOLACEAE			
Viola odorata	10		GORCZYNSKI, 1929.
„ *odorata* var. *praecox* G. .	9		MADGE, 1929.
Section Nominium			
Viola adunca J. E. SMITH (= *V. rupestris* SCHMIDT subspecies)	10 [8]		CLAUSEN, 1929.
„ *papilionacea* [9]	26		„ „
„ *rupestris* SCHMIDT var. *arenaria* (D. C.) G. BECK		20	„ „
„ *sepincola* FORD	16		„ „

[1]) See foot-note 2 page 192.
[2]) From the Expt. station Dhulia.
[3]) Seeds sent by the Cotton Botanist, Sind.
[4]) See foot-note 1 page 192.
[5]) Isolated by the Cotton Breeder Dhulia.
[6]) From the Cotton Botanist to the Gov't. of Punjab. Lyallpur.
[7]) From the Cotton Specialist Gov't of Madras.
[8]) Two different types were examined.
[9]) This species was called *V. cucullata* in CLAUSEN 1927*b*.

VIOLACEAE (continued)	n	2n	
Section Nominium (continued)			
Viola (continued)			
Viola striata AIT.	10		CLAUSEN, 1929.
„ *uliginosa* BESS.	10		„ „
Section Chamaemelanium			
Viola chrysantha HOOK. . . .	12		„ „
„ *glabella* NUTT.	12		„ „
„ *ocellata* TORR. et GRAY .	6		„ „
„ *pedunculata* TORR. et GRAY	6		„ „
„ *pubescens* AIT.		12	„ „
„ *purpurea* KELL.		24? [1]	„ „
„ *sarmentosa* DOUGH. . .	12		„ „
Section Melanium			
„ *nana* D. C.		48 [2]	„ „
„ *Rafinesquie* GREENE . .	17		„ „
„ *rothomagensis* DESF. . .	17		„ „
VIOLA [3])			
Section Nominium			
A. *Curvo pedunculata*			
Viola nipponica MAXIM. („Aoi-sumire") . . .	10		MIYAJI, 1929.
„ *odorata* L.	10		„ „
B. *Mirabiles*			
Viola mirabilis L. („Ibuki-sumire")		20	„ „
C. *Silvestres*			
Viola Faurieana W. BCKR. („Teriha-tatitubo-sumire") .		20	„ „
„ *grypoceras* A. GRAY („Tatitubo-sumire")	10	20	„ „
„ *lutchuensis* NAKAI („Ryûkû-tatitubo-sumire")	10	20	„ „
„ *obtusa* Makino („Nioi-tatitubo-sumire")		20	„ „

[1]) Not greater than 25 and not less than 23.
[2]) Not greater than 48 and not less than 46.
[3]) The classification of species studied by MIYAJI is according to BECKER (ENGLER and PRANTL, 2nd Edition) and NAKAI.

VIOLACEAE (continued)	n	2n	
VIOLA (continued)			
C. *Silvestres* (continued)			
Viola ovato-oblonga MAKINO („Nagabano-tatitubo-sumire") .		20	MIYAJI, 1929.
„ *pruniflora* NAKAI („Yamazakura-sumire").		20	„ „
„ *rostrata* MUHL. („Nagabaoi-sumire"). .		20	„ „
„ *sachalinensis* BOISS. (Kôrai-tatitubo-sumire").	10	20	„ „
„ *yakushimana* NAKAI („Koke-sumire")		20	„ „
D. *Caninae*			
Viola micrantha TURCZ. (Yezo-no-tatitubo-sumire")	10		„
„ *Raddeana* REGEL („Tati-sumire") .		20	„ „
„ *Thibaudieri* FRANCH. et SAVAT. („Tade-sumire")	10	20	„ „
E. *Bilobatae*			
Viola fibrillosa W. BCKR. (Miyama-tubo-sumire)	12		„ „
„ *verecunda* A. GRAY („Tubo-sumire") .	12	24	„ „
„ *verecunda forma radicans* MAKINO („Hai-tubo-sumire")	12		„ „
„ *verecunda* var. *semilunaris* MAXIM. („Agi-sumire") . .		24	„ „
F. *Umbrosae*			
Viola Boissieuana MAKINO („Hime-Miyama-sumire") . . .		24	„ „
„ *Maximowicziana* MAKINO („Ko-Miyama-sumire") . .		24	„ „

VIOLACEAE (continued)	n	2n	
VIOLA (continued)			
F. *Umbrosae* (continued)			
Viola obtusosagittata KOIDZ. („Hosoba-sumire")		24	MIYAJI, 1929.
„ *okuboi* MAKINO („Ke-maruba-sumire")	12		„ „
„ *okuboi* var. *glabra* MAKINO (Maruba-„ sumire")	12		„ „
„ *Selkirkii* PURSH. („Miyama-sumire")		24	„ „
„ *Takedana* MAKINO („Hina-sumire") .	12		„ „
„ *Takedana* var. *variegata* NAKAI (Huiri-hina-sumire") .	12		„ „
„ *Tanakacana* MAKINO („Sinano-sumire")		24	„ „
„ *variegata* FISCH. („Genzi-sumire") .	12	24	„ „
„ *violacea* MAKINO („Sihai-sumire") .		24	„ „
„ *yezoensis* MAKINO („Hikaje-sumire").		24	„ „
G. *Plagiostigma*			
Viola boninensis NAKAI („Atuba-sumire") .	24	48	„ „
„ *chaerophylloides* W. BCKR. („Higo-sumire")	12		„ „
„ *eizanensis* MAKINO („Eizan-sumire") .		24	„ „
„ *eizanensis* var. *simplicifolia* MAKINO („Hitotuba-yezo-sumire")	12	24	„ „
„ *hirtipes* S. MOORE („Sakura-sumire")	12	24	„ „
„ *japonica* LANGSD. („Ko-sumire") . .	24	48	„ „
„ *kisoana* NAKAI („Kiso-sumire") .		36	„ „

VIOLACEAE (continued)	n	2n	
VIOLA (continued)			
G. *Plagiostigma* (continued)			
Viola lactiflora NAKAI („Siro-ko-sumire")	24		MIYAJI, 1929.
„ *mandschurica* W. BCKR. [1] („Sumire")	24	48	„ „
„ *mandschurica* var. *albescens* NAKAI [2] („Ko-sirobana-sumire")	36		„ „
„ *mandschurica* var. *ciliata* NAKAI („Ke-sumire")		48	„ „
„ *Miyajiana* KOIDZ. („Suwa-sumire") .		24	„ „
multifida MAKINO („Kikuba-sumire")		24	„ „
„ *oblongo-sagittata* NAKAI („Ryûkyû-siro-sumire"). . .		72	„ „
„ *Patrini* DC. [3] („Yezo-sirobana-sumire")	12		„ „
„ *phalacrocarpa* MAXIM. („Akane-sumire")	12		„ „
„ *phalacrocarpoides* MAXIM. („Oka-sumire").		24	„ „
„ *pseudo-japonica* NAKAI („Ryûkyû-ko-sumire")		24	„ „
H. *Stolonosae*			
Viola shikokiana MAKINO („Sikoku-sumire").		24	„ „
I. *Vaginatae*			
Viola Bisseti MAXIM. („Nagaba-no-sumire-saisin") . . .		24	„ „
„ *Rossii* HEMSL. („Akebono-sumire") .		24	„ „

[1]) This species was previously (MIYAJI 1913) included by the name *V. Patrini* var. *chinensis* but is now considered as an independent species.

[2]) This species is the same as the one previously named *V. Patrini* (n = 36?).

[3]) This species is quite different from the one previously named *V. Patrini* (n = 36?).

	n	2n	
VIOLACEAE (continued)			
VIOLA (continued)			
I. *Vaginatae* (continued)			
Viola vaginata MAXIM. („Sumire-saisin") .		24	MIYAJI, 1929.
K. *Langsdorffianae*			
Viola Langsdorffii FISCH. („Ôba-tatitubo-sumire").		96	„ „
L. *Diffusae*			
Viola diffusa GING. („Tukusi-sumire") . .	13	26	„ „
M. *Boreali-Americanae*			
Viola cucullata AIT. . .		54	„ „
Section II. Dischidium			
Viola biflora L. („Kibana-no-Komanotume") . . .	6		„ „
„ *crassa* MAKINO („Takana-sumire")	24	48	„ „
Section III. Chamaemelanium			
Viola alliariaefolia NAKAI („Zin' yô-ki-sumire") .		12	„ „
„ *brevistipulata* W. BCKR.[1])	6		
„ *kishidai* NAKAI		12	„ „
CARICACEAE			
Carica papaya LINN.	9		ASANA & SUTARIA, 1929.
DATISCACEAE			
Datisca cannabina L.		11[2])	SINOTO, 1929*b*.
OPUNTIALES			
CACTACEAE			
Mamillaria sp.	11		ISHII, 1929.
MYRTIFLORAE			
LYTHRACEAE			
Lythrum hyssopifolia	10		TISCHLER, 1929*a*.
„ *salicaria*	25		„ „
„ *salicaria* var. *vulgare* D. C. subvar. *genuina* KOEHNE.	14[3]), 15		SHINKE, 1929.
PUNICACEAE			
Punica Granatum L.	8		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.

[1]) This species is the same as the one previously called *V. glabella*.

[2]) An unequal pair (much smaller than the others) of chromosomes was distinguishable in meiotic divisions of the male flowers.

[3]) One chromosome in this complex was tetrapartite.

	n	2n	
MYRTACEAE			
Myrtis communis L.	11		GRECO, 1929.
OENOTHERACEAE			
Zauschneria californica [1]) . .	78, 15, 30		JOHANSEN, 1929*b*.
„ *californica* PRESL.	7, 8, 15		„ 1929*c*.
„ *canescens*		ca. 30	„ 1929*b*.
„ *microphylla* . . .		ca. 30	„ „
Epilobium angustifolium . . .	18		„ „
„ *angustifolium* L. . .	18	36	„ 1929*c*.
„ *californicum* . . .	18		JOHANSEN, 1929*b*.
„ *californicum* HAUSSKN. . . .	18	36	„ 1929*c*.
„ *obcordatum*	18		„ 1929*b*.
„ *obcordatum* GRAY .	18	36	„ 1929*c*.
„ *paniculatum* . . .	18		„ 1929*b*.
„ *paniculatum* NUTT.	18	36	„ 1929*c*.
„ *paniculatum* var. *jucundum*	18		„ 1929*b*.
„ *paniculatum* var. *jucundum* TREL. . .	18	36	„ 1929*c*.
„ *watsoni* var. *franciscanum*	18		„ 1929*b*.
„ *watsoni* BARBEY var. *franciscanum* JEPSON	18	36	„ 1929*c*.
Boisduvalia glabella var. *campestris*	7		„ 1929*b*.
„ *glabella* WALP. var. *campestris* JEPSON	7 [2])	14	„ 1929*c*.
Clarkia elegans	3–13	7–22	„ 1929*b*.
„ *elegans* DOUGL. . . .	3–11 [3])	7–22	„ 1929*c*.
	4–13		BURLINGAME given by JOHANSEN, 1929*c*.
„ *pulchella*	4–14	8—16	JOHANSEN, 1929*b*.
„ *pulchella* PURSH. . . .	7 [3])	8–16	„ 1929*c*.
„ *rhomboidea*	7, 9		„ 1929*b*.
„ *rhomboidea* DOUGL. . .	9	18	„ 1929*c*.
„ *concinna* (= *Eucharidium concinnum*) . .	7	14	„ 1929*c*.
Eucharidium concinnum . . .	7		„ 1929*b*.
Godetia amoena	7		„ 1929*b*.

[1]) Several forms were examined.
[2]) 4, 5 and 6 haploid chromosomes were sometimes counted.
[3]) The number 7 was constant in meiotic divisions giving rise to megaspores.

OENOTHERACEAE (continued)	n	2n	
Godetia (continued)			
Godetia amoena (LEHM) LILJA .	7	14	JOHANSEN, 1929*c*.
„ *amoena* var. *lindleyi* .	7		„ 1929*b*.
„ *amoena* var. *lindleyi* JEPSON	7	14	„ 1929*c*.
„ *deflexa*	ca. 9		„ 1929*b*.
„ *quadrivulnera*		14	„ 1929*b*.
„ *quadrivulnera* (DOUGL.) SPACH		14	„ 1299*c*.
Onagra hookeri	7		„ 1929*b*.
Oenothera ammophila	14 [1] / 2		SHEFFIELD, 1929.
„ *angustissima*	14 [2] / 2		GATES & SHEFFIELD, 1929.
„ *Cockerelli*	14 [2] / 2		CLELAND & OEHLKERS, 1929.
„ *seg. deserens*	14 [3] / 2		ILLICK, 1929.
„ *eriensis*	14 [2] / 2		GATES & SHEFFIELD, 1929.
		14	GATES, 1929.
„ *fragilis*	7		HOEPPENER & RENNER, 1929.
„ *franciscana*	14 [4] / 2		„ „ „
„ *franciscana* BARTLETT	7 [5]		KULKARNI, 1929*b*.
„ *franciscana sulfurea*	7		ILLICK, 1929.
„ *grandiflora* DE VRIES	14 [3] / 2		CLELAND & OEHLKERS, 1929.
„ *grandiflora* B. . . .	7		ILLICK, 1929.
„ *Hookeri*	7		CLELAND & OEHLKERS, 1929; HOEPPENER & RENNER, 1929.
„ *ingeminans* mut. *quadrata*		21	DULFER given by DE VRIES, 1929.
„ *Lamarckiana* [6] . .	14 [1] / 2		ILLICK, 1929; RUDLOFF, 1929*b*; CLELAND & OEHLKERS, 1929.
	14 [1] / 2	14	CLELAND, 1929.

[1]) Arranged as a ring of 12 + 1 pair.
[2]) Arranged as a ring of 14.
[3]) Arranged as a circle of 6 + 4 pairs.
[4]) Arranged as a ring of 4 + 5 pairs.
[5]) Arranged as a closed chain of 4 + 5 ring shaped pairs of bivalents at second contraction but as 7 pairs at metaphase.
[6]) Plants from 3 different sources were examined by CLELAND (1929) — Princeton material, the *r-Lamarckiana* of RENNER (white-nerved *Lamarckiana* of HERIBERT NILSSON) and the original strain of DE VRIES.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera Lamarckiana albicans	14 [1] / 2		RUDLOFF, 1929*b*.
„ *Lamarckiana cruciata*	14 [2] / 2		CLELAND & OEHLKERS, 1929.
„ *Lamarckiana cucumis*	15		DULFER given by DE VRIES, 1929.
„ *Lamarckiana flava* .	14 [3] / 2		RUDLOFF, 1929*b*.
„ *Lamarckiana gigas* .	28 [4] / 2		HOEPPENER & RENNER, 1929.
„ *Lamarckiana lingua*	15		DULFER given by DE VRIES, 1929.
„ *Lamarckiana opaca* .	15		DULFER given by DE VRIES, 1929.
„ *Lamarckiana purpurata*	7		RUDLOFF, 1929*b*.
„ *Lamarckiana rubricaulis*	14 [5] / 2		„ „
„ *Lamarckiana semigigas*	21 / 2		DULFER given by DE VRIES, 1929.
„ *lutescens* (= sp. *flavens* sp. *flavens*) . .	7		HOEPPENER & RENNER, 1929.
„ *muricata*		14	HEITZ, 1929*a*.
„ *Novae-Scotiae* . . .	14 [1] / 2		SHEFFIELD, 1929.
„ *nutans*	14 [1] / 2		CATCHESIDE given by GATES & SHEFFIELD, 1929.
„ mut. *pervirens* . . .	14 [6] / 2		ILLICK, 1929.
„ *pratincola*	14 [2] / 2		„ „
„ *pratincola* mut. *formosa*.	14 [1] / 2		KULKARNI given by BLANCHARD, 1929.
	14 [7] / 2	14	KULKARNI, 1929*a*.

[1]) Arranged as a ring of 14.
[2]) Arranged as a ring of 12 + 1 pair.
[3]) Arranged as 2 rings of 4 and one of 6.
[4]) Arranged as a chain of 24 and 2 pairs.
[5]) Arranged as a ring of 8 and one of 6.
[6]) Arranged as a circle of 12 + 1 pair or as 7 pairs.
[7]) In a small percentage of cases the distribution of chromosomes in heterotypic metaphase was irregular and 6 went to one pole and 8 to the other. A circle of 14 in diakinesis.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera pratincola strain C. .	$\frac{14}{2}$ [1]		KULKARNI, 1929*a*.
„ *pratincola* strain E. .	$\frac{14}{2}$ [1]	14	„ „
„ *pratincola* strain M. (*O. pratincola* mut. *formosa* × strain C.) F_2	$\frac{14}{2}$ [2]		„ „
„ *pratincola* mut. *recidiva*	$\frac{14}{2}$ [3]		„ 1929*c*.
„ *pratincola* mut. *simulans*	$\frac{14}{2}$ [4]		„ „
„ *pratincola* gray dwarf	7		„ „
„ *pratincola* αα hybrid	$\frac{14}{2}$ [5]		„ „
„ *pratincola* ββ hybrid	$\frac{14}{2}$ [6]		„ „
„ *pratincola* hybrid *recidiva* with red buds	$\frac{14}{2}$ [4]		„ „
„ *pratincola* hybrid *simulans* with green buds	$\frac{14}{2}$ [4]		„ „
„ *purpurata* KLEBAHN	7		RUDLOFF, 1929*a*.
„ *pycnocarpa*	$\frac{14}{2}$ [4]		CATCHESIDE given by GATES & SHEFFIELD, 1929.
„ *rubricalyx*	$\frac{14}{2}$ [7]		SHEFFIELD, 1929.
		14	GATES, 1929.
„ *rubricalyx sulfurea* .	7		ILLICK, 1929.

[1]) See foot-note 7 page 201.
[2]) In diakinesis a circle of 12 + a ring of 2.
[3]) Arranged usually as a closed chain of 14 chromosomes but occasionally as an open chain.
[4]) Arranged as a ring of 14.
[5]) Arranged as an open or closed chain of 10 + 2 ring shaped pairs of chromosomes.
[6]) Arranged as a chain of 4 + 5 pairs during the late second contraction stage and in diakinesis either as such or as 7 pairs.
[7]) Arranged as a circle of 6 + 4 pairs.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera rubricaulis KLEBAHN	$\frac{14}{2}$ [1]		RUDLOFF, 1929*a*.
„ *strigosa*	$\frac{14}{2}$ [2]		CLELAND & OELKERS, 1929.
„ *suaveolens* (yellow) .	$\frac{14}{2}$ [3]		ILLICK, 1929; CLELAND & OELKERS, 1929.
„ *suaveolens* (sulphur)	$\frac{14}{2}$ [3]		ILLICK, 1929; CLELAND & OELKERS, 1929.
„ *ingeminans* mut. *quadrata*	21		DULFER given by DE VRIES, 1929.
„ *ingeminans* mut. *quadrata* × *O.* (*biennis* × *Lamarckiana*) laeta progeny.			
A. *Oenothera Lamarckiana ingeminans*	14		DULFER „ „ „ „ 1929.
B. Primary mutants:			
Cana	15		DULFER „ „ „ „ 1929.
Lata	15		DULFER „ „ „ „ 1929.
Liquida	15		DULFER „ „ „ „ 1929.
pallescens	15,(17)		DULFER „ „ „ „ 1929.
pulla	15, (16)		DULFER „ „ „ „ 1929.
scintillans	15, (18)		DULFER „ „ „ „ 1929.
spathulata	15 (16, 17)		DULFER „ „ „ „ 1929.
Accessory mutants:			
albida	15		DULFER „ „ „ „ 1929.
oblonga	15		DULFER „ „ „ „ 1929.
persicaria	15		DULFER „ „ „ „ 1929.

[1]) Arranged as a ring of 8 and one of 6.
[2]) Arranged as a ring of 14.
[3]) Arranged as a ring of 12 + 1 pair.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera ingeminans mut. *quadrata* × *O.* (*biennis* × *Lamarckiana*) *laeta* progeny.			
C. Secondary mutants.			
acuminata	19		DULFER given by DE VRIES, 1929.
Hamata	16		DULFER „ „ „ „ 1929.
Lata minor	15, 16, 17		DULFER „ „ „ „ 1929.
Latifolia	16		DULFER „ „ „ „ 1929.
Lingua	15		DULFER „ „ „ „ 1929.
militaris	16, 17		DULFER „ „ „ „ 1929.
planifolia	15		DULFER „ „ „ „ 1929.
rotunda	16		DULFER „ „ „ „ 1929.
synedra	17		DULFER „ „ „ „ 1929.
D. *Oenothera* — (tetraploid form)	26		DULFER „ „ „ „ 1929.
„ *compressa* (progeny of tetraploid form n = 26) .	28		HEYN given by DE VRIES, 1929.
Oenothera ammophila × *O. eriensis*	$\frac{14}{2}$ [1]		SHEFFIELD, 1929.
„ *ammophila* × *O. Novae-Scotiae*	$\frac{14}{2}$ [1]		„ „
„ *ammophila* × *O. rubricalyx*	$\frac{14}{2}$ [2]		„ „
„ (*biennis* × *Hookeri*) *albata* F_1	$\frac{14}{2}$ [3]		HOEPPENER & RENNER, 1929.

[1]) Arranged as a ring of 14 as in the pollen parent.
[2]) Arranged as a ring of 6 + 4 pairs as in the pollen parent.
[3]) Arranged as a chain of 14.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera Cockerelli × *suaveolens*	14 [1] / 2		CLELAND & OELKERS, 1929.
„ *eriensis* × *O. ammophila*	14 [2] / 2		SHEFFIELD, 1929.
„ *eriensis* × *O. rubricalyx*	14 [3] / 2		„ „
		14	GATES, 1929.
„ (*seg. decipiens* × *grandiflora*) F_1 . .	14 [4] / 2		ILLICK, 1929.
„ (*seg. decipiens* × *grandiflora*) F_2 . .	14 [5] / 2		„ „
„ *franciscana* × *O. franciscana sulfurea* F_1 (one plant)	7 / 2		EMERSON, S. H., 1929.
„ (*grandiflora* × *seg. decipiens*) F_2 . . .	14 [5] / 2		ILLICK, 1929.
„ (*grandiflora* × *seg. decipiens*) F_2 . . .	14 [4] / 2		„ „
„ *grandiflora* × *Hookeri*	14 [6] / 2		CLELAND & OELKERS, 1929.
„ *grandiflora* × *Lamarckiana*	14 [7] / 2		„ „ „
„ *Hookeri* × *grandiflora*	14 [6] / 2		„ „ „
„ (*Hookeri* × *Lamarckiana*) *velutina* . .	14 [8] / 2		HOEPPENER & RENNER, 1929.

[1]) Arranged as a circle of 8 + 3 pairs, or circle of 12 + 1 pair.
[2]) Arranged as a ring of 12 + 1 pair as in the pollen parent.
[3]) Arranged as a ring of 12 + 1 pair as in neither parent.
[4]) Arranged as a circle of 6 + 4 pairs.
[5]) Arranged as a circle of 6 + 4 pairs or as 7 pairs (the latter more common).
[6]) Arranged as 2 circles of 4 + 3 pairs or circle of 14.
[7]) Arranged as a circle of 4, circle of 6 + 2 pairs or circle of 14.
[8]) Arranged as a ring of 4 + at least 3 pairs with the other 4 chromosomes arranged as 2 more pairs or a ring of 4.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera Lamarckiana cruciata × *O. strigosa* . . .	$\frac{14}{2}$ [1]		CLELAND & OELKERS, 1929.
„ *Lamarckiana* × *grandiflora*	$\frac{14}{2}$ [2]		„ „ „
„ *Lamarckiana* × *suaveolens sulfurea* . .	$\frac{14}{2}$ [3]		„ „ „
„ (*Lamarckiana nanella* × *Hookeri*) *laeta*	$\frac{14}{2}$ [4]		HOEPPENER & RENNER, 1929.
„ (*purpurea* × *cruciata*) *flexa* F_2	$\frac{14}{2}$ [5]		RUDLOFF, 1929*a*.
„ (*purpurea* × *Lamarckiana*) *laeta* F_2	$\frac{14}{2}$ [4]		„ „
„ { (*purpurea* × *Lamarckiana*) *velutina* × *purpurea* } *velutina*.	$\frac{14}{2}$ [6]		„ „
„ (*purpurea* × *suaveolens*) *flava* F_2 . . .	7		„ „
„ { (*purpurea* × *suaveolens*) *flava* × *R. biennis*) } *purpurea–rubiflava*	$\frac{14}{2}$ [5]		„ „
„ *rubricalyx* × *O. eriensis*		7 [7], 14	GATES, 1929.
„ *rubricalyx* × *O. Novae-Scotiae*	$\frac{14}{2}$ [8]		SHEFFIELD, 1929.

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[1]) Circle of 4, circle of 6 + 2 pairs, or circle of 14, or circle of 10 + 2 pairs.
[2]) See foot-note 7 page 205.
[3]) 2 circles of 4 + 3 pairs, or circle of 14, or circle of 12 + 1 pair or circle of 6 and circle of 8.
[4]) Arranged as a ring of 10 + 2 pairs.
[5]) Arranged as a ring of 4 + 5 pairs.
[6]) Arranged as a ring of 12 + 1 pair.
[7]) One plant was a haploid with 7 somatic chromosomes.
[8]) Arranged as a ring of 12 + 1 pair as in neither parent.

OENOTHERACEAE (continued)	n	2n	
Oenothera (continued)			
Oenothera strigosa × *Lamarckiana cruciata* . .	14 [1] / 2		CLELAND & OELKERS, 1929.
„ *strigosa* × *suaveolens sulfurea*	14 [2] / 2		„ „ „
„ *suaveolens* × *Cockerelli*	14 [3] / 2		„ „ „
„ *suaveolens sulfurea* × *Lamarckiana* . .	14 [4] / 2		„ „ „
„ *suaveolens sulfurea* × *strigosa*	14 [2] / 2		„ „ „
„ *suaveolens* × *biennis rubiflava*	14 [5] / 2		HOEPPENER & RENNER, 1929.
Hartmannia tetraptera (CAV.) SMALL = *Oenothera tetraptera* CAVANILLES	7	14	JOHANSEN, 1929*a*, *c*.
Hartmannia tetraptera	7		„ 1929*b*.
Anogra trichocalyx	7		„ „
„ *trichocalyx* (NUTT.) SMALL.	7	14	„ 1929*c*.
Megapterium missouriense . .	7		„ 1929*b*.
„ *missouriense* (SIMS) SPACH. .	7		„ 1929*c*.
Taraxia heteranthera var. *taraxacifolia*		ca. 14	„ 1929*b*.
„ *heteranthera* var. *taraxacifolia* (S. WATS) SMALL.		ca. 14	„ 1299*c*.
„ *ovata*	7		„ 1929*b*.
„ *ovata* (NUTT.) SMALL. .	7	14	„ 1929*c*.
Chylismia clavaeformis . . .	7		„ 1929*b*.
„ *clavaeformis* var. *typica* (MUNZ) comb. nov.	7		„ 1929*c*.

[1]) Circle of 4, circle of 6 + 2 pairs, or circle of 14, or circle or 10 + 2 pairs.
[2]) Arranged as circle of 4 + 5 pairs, or circle of 12 + 1 pair.
[3]) Arranged as circle of 8 + 3 pairs, or circle of 12 + 1 pair.
[4]) 2 circles of 4 + 3 pairs, or circle of 14, or circle of 12 + 1 pair or circle of 6 and circle of 8.
[5]) Arranged as a ring of 12 + 1 pair.

OENOTHERACEAE (continued)	n	2n	
Galpinsia hartwegi	7		JOHANSSEN, 1929*b*.
Gaura coccinea	7		„ „
„ *coccinea* PURSH.	7	14	„ 1929*c*.
„ *lindheimeri*		14	„ 1929*b*.
„ *lindheimeri* ENGELM. & GRAY		14	„ 1929*c*.
Gauridium molle	7		„ 1929*b*.
Stenosiphon linifolium	7		„ „
„ *linifolium* (NUTT.) BRITTON	7		„ 1929*c*.
Fuchsia magellanica var. *gracilis*	11		„ 1929*b*.
„ *magellanica* var. *riccartoni*	11		„ „
„ *magellanica* var. *riccartoni* HORT. . . .	11	22	„ 1929*c*.
Sphaerostigma dentatum . . .	7		„ 1929*b*.
„ *dentatum* var. *campestre* . .	7		„ „
„ *dentata* var. *campestris* . . (JEPSON) comb. nov.	7	14	„ 1929*c*.
„ *spirale*	7		„ 1929*b*.
„ *spirale* (LEHM.) WALP.	7	14	„ 1929*c*.
„ *veitchianum* . .	7		„ 1929*b*.
„ *veitchianum* (HOOK) SMALL. . . .		14	„ 1929*c*.
Skinnera procumbens	11		„ 1929*b*.
Circaea alpina L.		22	UDDLING, 1929.
„ *intermedia* ERH. . . .		22	„ „
„ *lutetiana* L.		22	„ „
„ *pacifica*	11		JOHANSSEN, 1929*b*.
„ *pacifica* ASCH. & MAG.		22	„ 1929*c*.
UMBELLIFLORAE			
UMBELLIFERAE			
Torilis Anthriscus BERNH. . .	8		OGAWA, 1929.
Petroselinum sativum HOFFM. .	11		„ „
Circuta virosa L.	11		„ „
Foeniculum vulgare GAERTN. .	11		„ „
Ligusticum acutilobum SIEB. et ZUCC.	11		„ „

	n	2n	
UMBELLIFERAE (continued)			
Angelica pubescens MAXIM. . .	11		OGAWA, 1929.
„ *sylvestris* L.	11		„ „
„ sp.	33		„ „
Phellopterus littoralis FR. SCHM.	11		„ „
Peucedanum decursivum MAXIM.	11		„ „
„ *japonicum* THUNB.	11		„ „
Pastinaca sativa L.	11		„ „
CORNACEAE			
Aucuba japonica THUNB. . . .	2_6+4_4+2, $1_8+3_4+1_3$, $+4+1_1$, 1_8+3_4+6, 1_6+6_4+1.	32	MEURMAN, 1929*a*.
		32	SINOTO, 1929*b*.
ERICALES			
ERICACEAE			
Rhododendron quinquefolium BISS. et MOORE var. *speciosum* MAK.?	13		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
PRIMULALES			
PRIMULACEAE			
Primula acaulis		22	HUSKINS, 1929.
„ *floribunda*		18	NEWTON & PELLEW, 1929.
„ *Juliae*		22	HUSKINS, 1929.
„ *Kewensis*	9	18	NEWTON & PELLEW, 1929.
	$16+1_4$ [1]	36	„ „ „
„ *Kewensis* (tetraploid offspring)		34–37 [2]	„ „ „
„ *sinensis*	12 & 24		DE WINTON, 1929.
„ *verticillata*		18	NEWTON & PELLEW, 1929.
„ *acaulis* × *P. Juliae* .		22	HUSKINS, 1929.
„ *elatior* × *P. Juliae* .		22	„ „
„ *floribunda* × *P. Kewensis* (n = 9) . . .	$9, 8+2_1$		NEWTON & PELLEW, 1929.
„ *Kewensis* (n = 18) × *P. floribunda* . . .	$10+6_1$		„ „ „
„ *officinalis* × *P. Juliae*	11	22	HUSKINS, 1929.
„ — „Polyanthus Cloth of Gold" × *P. Juliae*		22	„ „

[1]) Occasionally 2 or 3 quadrivalents were found.
[2]) One dwarf plant had 20 chromosomes.

TUBIFLORAE	n	2n	
CONVOLVULACEAE			
Pharbitis hederacea	15		KANÔ, 1929.
„ *hispida*	15		„ „
„ *Nil.*	15		„ „
Quamoclit angulata	15		„ „
„ *Sloteri*	30		„ „
„ *vulgaris*	15		„ „
Calystegia sepium var. *japonica*	11		„ „
„ *Soldanella*	11		
Calonyction bona-nox		30	„ „
Ipomaea edible	42?		„ „
Convolvulus tricolor		20	„ „
LABIATAE			
Galeopsis bifida BOENN. . . .	16		MÜNTZING, 1929.
„ *Tetrahit* L.	16		„ „
„ *Tetrahit* L. × *G. bifida* BOENN.	16		„ „
Salvia nipponica MIQ. var. *argutidens* MAKINO	8		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929
Mentha canadensis L. var. *piperascens* BRIQUET. .	27		WOLF, 1929.
„ *piperita* L. var. *crispa* L.	18		„ „
„ *piperita* (MITCHAM, HAAGE-SCHMIDT) „*aquatica* 3 × *viridis* 1"	18		„ „
„ *piperita* (HUDS.) „*aquatica* 2 × *viridis* 1" . .	18		„ „
„ *piperita* L. „*aquatica* 1 × *viridis* 1" . . .	18		„ „
„ *piperita* L. „*aquatica* 1 × *viridis* 2"	18		„ „
„ *piperita* L. (HEINE 1) „*aquatica* 1 × *viridis* 3"	18		„ „
NOLANACEAE			
Nolana atriplicifolia Hort. . .	12		WHYTE, 1929*a*.
„ *prostrata* L.	12		„ „
„ *prostrata* L. × *N. atriplicifolia* Hort. F_1 .	24 [1] / 2		

[1]) Only a small amount of pairing was evident as 4 or 3 bivalents with 16 and 18 univalents respectively.

NOLANACEAE (continued)	n	2n	
Nolana (continued)			
Nolana prostrata × *N. atriplicifolia* Hort. F_2 . . .	12 [1]		WHYTE, 1929*a*.
„ *prostrata* L. × *N. atriplicifolia* Hort. F_3 & F_4	12 [2]		„ „
„ *prostrata* L. × *N. atriplicifolia* Hort. (one F_3 plant)	$12\,\overline{2}$ [3]	12	„ „
„ *prostrata* L. × *N. atriplicifolia* Hort. (special *Nolana* type) [4]	12		„ „
SOLANACEAE			
Lycium chinense	12		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
„ *halimifolium* MILL. . .	12		KOSTOFF & KENDALL, 1929.
Solanum chacoense BITTER . .	12		CLARK, 1929.
„ *Commersonii* DUN. .	12, 11–14 [5]		DE VILMORIN, 1929.
„ *fendleri* GRAY . . .	24		CLARK, 1929.
„ *lycopersicum* [6] . . .	12_1 [7]	12 [8]	LINDSTROM, 1929.
„ *lycopersicum* Dwarf aristocrat	$12+2_1$		LESLEY & LESLEY, 1929.
„ *lycopersicum* Dwarf Champion	$12+2_1$		„ „ „
„ *lycopersicum* Dwarf aristocrat (double trisomic × diploid)	$12+1\,\overline{2}$		„ „ „
„ *lycopersicum* Dwarf aristocrat (triploid × diploid)	$12+1_1+1\,\overline{2}$		„ „ „

[1]) Bivalents were regularly seen at diakinensis — lagging univalents being very few.
[2]) Divisions were regular for the most part.
[3]) A haploid flower was found on a shoot of a diploid plant which was lost.
[4]) This plant especially resembled *N. atriplicifolia*.
[5]) 4 to 8 monovalents or 2 to 3 trivalents might appear.
[6]) This haploid arose in the F_2 generation from a varietal cross in which there was complete fertility. (Red Pear × Dwarf Peach).
[7]) The first meiotic division was not an orderly procedure as 6 chromosomes might go to either pole or there might be random distribution.
[8]) Occasional cells in the root-tips of the haploid possessed more than 12 chromosomes, 3 cells had 24 and 1 cell was found to have only 11.

SOLANACEAE (continued)	n	2n	
Datura stramonium	12		BLAKESLEE, 1929.
Primary mutants:			
Poinsettia	13		„ „
Rolled	13		„ „
Secondary mutants:			
Dwarf	13		„ „
Echinus		25	„ given by DAVENPORT, 1928.
Mutilated		25	BLAKESLEE given by DAVENPORT, 1928.
Polycarpic	13		BLAKESLEE, 1929.
Sugarloaf	13		„ „
Thistle		25	„ given by DAVENPORT, 1928.
Tertiary types:			
Dwarf Sugarloaf	13		BLAKESLEE, 1929.
Wiry	13		„ „
Nicotiana alata LK. et OTTO .		18	GOODSPEED & AVERY, 1929*a*.
„ *alata* (from Uruguay)		18	AVERY, 1929.
„ *alata* var. *grandiflora*	9	18	„ „
„ *alata* LK. et OTTO (controlled *pollination*)		18, 19 [1]	„ „ GOODSPEED & AVERY, 1929*a*.
„ *alata* (normal × monosomic)		18, 19 [2]	AVERY, 1929.
„ *alata* (monosomic × normal)		18, 22, 25–27 [5]	GOODSPEED & AVERY, 1929.
	8-11, 9-10, 19 [3]	18, 22 [5] 25 [5] 26 [4] 27 [6]	AVERY, 1929.
„ *digluta*	36		CLAUSEN & LAMMERTS, 1929.
„ *glutinosa* [7]	12		„ „ „ GOODSPEED, 1929*b*.

[1]) One monosomic *alata* form occurred in a population of 80 plants resulting from controlled pollination with normal pollen.

[2]) Of 57 plants only 2 showed 19 chromosomes.

[3]) In a trisomic plant a single large spindle showed 19 chromosomes.

[4]) Of 22 plants 4 showed 22, 25, 26 and 27 chromosomes.

[5]) Though the other plants with additional chromosomes showed no marked alteration in external morphology the plant with 22 chromosomes was a dwarf and the one with 25 chromosomes was abnormal with misshapen flowers.

[6]) The plant with 27 chromosomes showed a full triploid set.

[7]) This haplont was one of 24 plants that grew from seedlings which had been

SOLANACEAE (continued)	n	2n	
Nicotiana (continued)			
	$\frac{12_I}{2}$ [1]	12	GOODSPEED & AVERY, 1929*b*.
Nicotiana Langsdorffii	9		GOODSPEED 1929*b*, KOSTOFF, 1929.
„ *longiflora* CAV. . . .	10, 11	20	HOLLINGSHEAD, 1929.
„ *longiflora* var. *parviflora*		20	„ „
„ *longiflora* CAV. (open-pollinated probably *N. longiflora* × *N. alata*)		19	„ „
„ *nudicaulis*	24		GOODSPEED, 1929*b*.
„ *sylvestris*	12		„ „
„ *tabacum*	24		CLAUSEN & LAMMERTS, 1929.
„ *tabacum macrophylla*	70–72		KOSTOFF, 1929.
„ *tabacum* var. *purpurea*	24		GOODSPEED, 1929*b*.
„ *tabacum* var. *purpurea* (x-rayed) . . .	$\frac{48_I}{2}$, 19+2$_I$+ fragment, $\frac{12_3+12+12_I}{2}$, 24, 23+1$_I$, 24+1$_I$, 22+1$_I$, 23, 24+ fragments, 23+ fragments, 23+2 fragments.		„ „ „ 1929*a*.
„ *digluta* (carmine) × *N. tabacum* white	F_1 23+$\frac{11_I}{2}$, 23+$\frac{12_I}{2}$, 22+$\frac{13_I}{2}$,		CLAUSEN & LAMMERTS, 1929.

subjected to x-radiation. As no effects were apparent except in this case and that of another weak plant, this haplont was considered to have occurred spontaneously in a pure line.

[1]) Random distribution of chromosomes occurred in the heterotypic metaphase

SOLANACEAE (continued)	n	2n	
Nicotiana (continued)			
	$24+\frac{12_I}{2}$.		
Nicotiana digluta (carmine) × *N. tabacum* (one plant) [1]	$\frac{24_I}{2}$		CLAUSEN & LAMMERTS, 1929.
(„ *rustica pumila* × *N. paniculata*) × *N. paniculata*	$12+\frac{1_I-9_I}{2}$, $12+\frac{24_I}{2}$	46, 80	LAMMERTS, 1929.
(„ *rustica pumila* × *N. paniculata*) × *N. paniculata* (one individual)	$13+\frac{8_I}{2}$		„ „
(„ *paniculata* × *N. rustica pumila*) × *N. rustica*	15–21 $+\frac{9_I-3_I}{2}$, $\frac{24+12_I}{2}$	56–58, 59, 60	„ „
(„ *paniculata* × *N. rustica pumila*) × *N. rustica* (one individual)	$16+\frac{9_I}{2}$		„ „
„ *tabacum* × *N. sylvestris* F_1		36	RYBIN, 1929.
„ *tabacum* × *N. sylvestris* F_2	28–36 [2]	72	„ „
„ *tabacum macrophylla* × *N. Langsdorffii* (androgenetic *Nicotiana* haploid) . . .	$\frac{9_I}{2}$	9 [3]	KOSTOFF, 1929.

[1]) As the plant was identical with *N. tabacum purpurea* haploids except that it had white instead of carmine flowers it was concluded that this was a case of haploid merogony.

[2]) Not infrequently fewer units than 35 were found and this was explained as the result of formation of polyvalent chromosomes.

[3]) Out of 58 root-tip pieces only one was diploid, the rest all being haploid.

	n	2n	
SOLANACEAE (continued)			
Petunia	at least 14		MATSUDA, 1928.
PEDALIACEAE			
Sesamum indicum L.		26	MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
ACANTHACEAE			
Acanthus mollis L.	24 or > 24		GIGANTE, 1929.
PLANTAGINALES			
PLANTAGINACEAE			
Plantago japonica forma polystachya		36	SINOTO given by IKENO, 1929.
„ *major* var. *asiatica* .		24	„ „ „ „ „
„ *japonica forma polystachya* × *P. major* var. *asiatica*		36	„ „ „ „ „
RUBIALES			
DIPSACACEAE			
Morina longifolia WALL. . . .		34	KACHIDZE, 1929*a*.
„ *persica* L.		34	„ „
Cephalaria alpina SCHR. . . .		36	„ „
„ *ambrosioides* SCHR.		18	„ „
„ *caucasica* LITW. . .		18	„ „
„ *elata* SCHR.		36	„ „
„ *graeca* B. et SCH.. .		18	„ „
„ *laevigata* Schr. . .		36	„ „
„ *leucantha* SCHR. . .		18	„ „
„ *media* LITW. . . .		18	„ „
„ *rigida* R. et S. . .		18	„ „
„ *syriaca* SCHR. . . .		10	„ „
„ *tatarica* (GMEL. . .		36	„ „
„ *transsylvanica* L. var. *caucasica* . .		18	„ „
„ *Tschichatchewii* BOISS.		36	„ „
„ *uralensis* SCHR. . .		18	„ „
Dipsacus azureus SCHRENK . .		18	„ „
„ *chinensis* BATAL. . .		36	„ „
„ *ferox* LOIS.		18	„ „
„ *fullonum* MILL. . . .		18	„ „
„ *inermis* WALL. . . .		18	„ „
„ *laciniatus* L.		18	„ „
„ *pilosus* L.		18	„ „
„ *plumosus* KOCH . . .		18	„ „
„ *sativus* HONCK . . .		18	„ „

	n	2n	
DIPSACACEAE (continued)			
Dipsacus (continued)			
Dipsacus sylvestris L.		18	KACHIDZE, 1929*a*.
„ *torsus?*		18	„ „
Succisa australis WOLF		20	„ „
„ *pratensis* MOENCH.		20	„ „
Knautia arvensis COULT.		40	„ „
„ *hybrida* COULT.		20	„ „
„ *orientalis* L.		16	„ „
„ *purpurea* BORB.		20	„ „
Pterocephalus plumosus COULT.		18	„ „
Callistemma brachiatum BOISS.		14	„ „
SCABIOSA			
Section Sclerostemma			
Scabiosa columbaria L.		16	„ „
„ *fumarioides* VIS.		16	„ „
„ *holosericea* DC.		16	„
„ *gramuntia* L.		16	„
„ *ochroleuca* L.		16	„ „
„ *triniaefolia* FRIV.		16	„
„ *vestina* KOCH.		16	„
Section Vidua			
Scabiosa maritima L.		16	„
Section Asterocephalus			
Scabiosa caucasica MB. (from Caucasus)		36	„
„ *caucasica* MB. (from Uppsala)		54	„ „
„ *cretica* L.		18	„ „
„ *graminifolia* L.		18	„ „
„ *magnifica?*		18	„ „
„ *micrantha* DESF.		18	„ „
„ *prolifera* L.		18	„ „
„ *pterocephala* L.		18	„ „
„ *songarica* SCHRENK.		18	„ „
„ *speciosa* ROYLE		18	„ „
„ *stellata* L.		36	„ „
„ *ucranica* L.		18	„ „
CUCURBITALES			
CUCURBITACEAE			
Luffa aegyptica MILL.	13		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Bryonia dioica	10		LINDSAY, 1929.
Cucumis sativus	7	14	HEIMLICH, 1929.

	n	2n	
CUCURBITACEAE (continued)			
Trichosanthes japonica REGEL.	11 [1])	22	SINOTO, 1929*b*.
Cucurbita maxima		24	RAU, 1929*a*.
CAMPANULATAE			
CAMPANULACEAE			
Campanula persicifolia	8		DE SOUZA VIOLANTE, 1929.
COMPOSITAE			
Helipterum corymbiflorum. . .		16	HEITZ, 1929*a*.
Dahlia coccinea	16	32	LAWRENCE, 1929.
„ *coronata*		32	„ „
„ *Maxoni*		32	„ „
„ *Merckii*	18	36	„ „
„ *variabilis*.	32	64	„ „
Hidalgoa Wercklei		ca. 31	„ „
Bidens atrosanguinea.	24	48	„ „
Gaillardia pulchella FOUG. . .	18		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Centaurea Cyanus L..	12		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Crepis aculeata (Dc.) BOISS . .	4		BABCOCK & CLAUSEN, 1929.
„ *alpina*		10	NAWASCHIN, 1928.
„ *alpina* L.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *artificialis*	12	24	COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *artificialis* (triploid) . .	18 [2]), 19 [3]), 20 [3])	36	COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *artificialis* (triploid progeny)		31, 33-35	COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *aspera* L.	4		BABCOCK & CLAUSEN, 1929.
„ *aurea* L. CASS.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *biennis* L.	20	39–41	COLLINS, HOLLINGSHEAD & AVERY, 1929.
		42–45	NAWASCHIN given by COLLINS, HOLLINGSHEAD & AVERY, 1929.

[1]) An unequal pair of chromosomes was distinguishable in meiotic divisions of male flowers.

[2]) Where 18 units appeared the plate consisted of $17 + 1_1$.

[3]) Where 19 units appeared the plate consisted of $17 + 2_1$ and where 20 as $16 + 4_1$.

COMPOSITAE (continued)	n	2n	
Crepis (continued)			
Crepis blattarioides		8, 12 [1]), 9, 14 [2])	GEITLER, 1929*a*.
„ *bursifolia* L.	4		BABCOCK & CLAUSEN, 1929.
„ *capillaris*		6	GEITLER, 1929*a*, *b*.
„ *virens*		6	NAWASCHIN, 1928.
„ *capillaris* (L.) WALLR.		9	NAWASCHIN, 1929.
„ *capillaris* (L.) WALLR. (2n = 9) (open pollination F_1)		6, 7, 9 [3])	NAWASCHIN, 1929.
„ *capillaris* (L.) WALLR. (open pollination F_2)		6, 12, 21 [4])	„ „
„ *dioscoridis*		8 [5])	GEITLER, 1929*a*, NAWASCHIN, 1928, MEDWEDEWA, 1929.
„ *dioscoridis* L.		12	NAWASCHIN, 1929.
„ *dioscoridis* L. (2n = 9) (open pollination F_1)		6, 7, 9	„ „
„ *foetida* L.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *grandiflora*		8	NAWASCHIN, 1928.
„ *leontodontoides* ALT.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *Marschallii*		8	NAWASCHIN, 1928.
„ *multicaulis* LEDEB.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *parviflora*		8	NAWASCHIN, 1928.
„ *pulcherrima*		8	„ „
„ *rhoeadifolia*		10	„ „
„ *rubra* L.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *rubra*		10	NAWASCHIN, 1928; GEITLER 1929*a*.
„ *setosa* HALL.	4		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *sibirica* L.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.

[1]) One triploid plant (2n = 12) appeared.

[2]) Two plants appeared to have 9 as the diploid number. In a large epidermal cell 14 chromosomes were found.

[3]) The F_1 plants were largely diploid, or triploid with a few trisomic plants.

[4]) The F_2 plants included about the same proportion of diploid and triploid plants but also disomics and trisomics 3n + 1, 3n + 1 + 1 as well as a few tetraploids and 7n plants.

[5]) MEDWEDEWA found the plant cells to have 2 large satellites, 2 small satellites or 1 large and 1 small satellite.

COMPOSITAE (continued)	n	2n	
Crepis (continued)			
Crepis taraxacifolia THUILL. .	4		BABCOCK & CLAUSEN, 1929.
„ *tectorum*		8	NAWASCHIN, 1928.
„ *tectorum* L.	4		BABCOCK & CLAUSEN, 1929.
„ *tectorum* L. (2n = 9) (open pollination F_1) .		6, 7, 9	NAWASCHIN 1929.
„ *tingitana* SALZ.	5		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *aspera* L. × *C. bursifolia* L.	$4, 3+\frac{2_1}{2}, 2+\frac{4_1}{2}, 1+\frac{6_1}{2}, \frac{8_1}{2}$		BABCOCK & CLAUSEN, 1929.
„ *aspera* L. × *C. aculeata*	$4, 3+\frac{2_1}{2}, 2+\frac{4_1}{2}$		„ „ „
„ *biennis* × *C. setosa* 26.47 P_2 = *C. artificialis* . .	10–15		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *biennis* × *C. setosa*. . .	$10+\frac{4_1}{2}$		COLLINS, HOLLINGSHEAD & AVERY, 1929.
(„ *biennis* × *C. setosa*) . .	$15+\frac{4_1}{2}$		COLLINS, HOLLINGSHEAD & AVERY, 1929.
„ *capillaris* (2n = 9) × *C. alpina*		10 [1]	NAWASCHIN, 1929.
„ *capillaris* (2n = 9) × *C. neglecta*		16 [2]	„ „
„ *taraxacifolia* THUILL. × *C tectorum* L.	$4, 3+\frac{2_1}{2}, 2+\frac{4_1}{2}, 1+\frac{6_1}{2}$		BABCOCK & CLAUSEN, 1929.
Lactuca denticulata.		10	HEITZ, 1929*a*.

) This number consisted of a diploid number of *C. capillaris* and a haploid of *C. alpina*.

[2]) This hybrid had 4 haploid sets of *C. capillaris* and 1 set of *C. neglecta*.

MONOCOTYLEDONEAE

HELOBIAE

	n	2n	
ALISMATACEAE			
Sagittaria Aginashi MAKINO . .	11		SHINKE, 1929.
HYDROCHARITACEAE			
Hydrocharis Morsus ranae L. .		28	TUSCHNJAKOWA, 1929*b*.
Hydrilla verticillata PRESL. . .	8 [1])	16, 24	SINOTO, 1929*b*.

GLUMIFLORAE

GRAMINEAE			
Euchlena perenne	20		LONGLEY given by EMERSON, R. A., 1929.
	10^4		RANDOLPH according to EMERSON, R. A., 1929.
„ *perenne* × *Zea Mays*	varying nos. bi-, tri- and univalents.		LONGLEY & RANDOLPH given by EMERSON, R. A., 1929.
Zea Mays	10 [2])		LONGLEY given by EMERSON, R. A., 1929; BEADLE, 1929.
„ *Mays* (diploid)	$10, 9+2_{\frac{1}{2}}$		McCLINTOCK, 1929*a*.
„ *Mays* (triploid)	10_3, 9_3+1+1_1, $6_3+4+4_{\frac{1}{2}}$	30	„ „
„ *Mays* (dip.) × *Z. Mays* (trip.)	10_3, 9_3+1+1_1, 6_3+4+4_1		„ „
„ *Mays* (dip.) × *Z. Mays* (trip.)	$10,10+1_1$, $10+1_{\frac{3}{2}}$, $8+2_3$, $9+1_3+1_1$		„
„ *Mays* (trip.) × *Z. Mays* (dip.)	$7+3_3$, $6+4_3$,		

[1]) An unequal pair of chromosomes was distinguishable in meiotic divisions of male flowers of this form. Only somatic plates of the second form (2n = 24) were examined.

[2]) According to BEADLE (1929) in sterile maize plants the two normal divisions of microsporogenesis were followed by further aberrant divisions until as many as 8 cells resulted, each with considerably less than the normal haploid number of chromosomes.

	n	2n	
GRAMINEAE (continued)			
Zea (continued)			
	$5+5_3$, $3+7_3$, $8+2_3+1$, $8+1_3+4$		McCLINTOCK, 1929*a*.
Zea Mays F_1, Plant 94_2, (2n+5)	$5+5_3$, $6+4_3+1_1$, $10+5_1$, $9+7_1$, $4+3_3+8_1$, 25_1.		„ „
„ *Mays* (trip.) × *Z. Mays* (dip.) F1	$9+1_1$		McCLINTOCK, 1929*b*.
ANDROPOGONEAE.			
Miscanthus sinensis ANDERSS. var. *zebrinus* BEAL.	21		CHURCH, 1929*b*.
Andropogon furcatus MÜHL. .	35		„ „
„ *halepensis* BROTERO.	20		FAWOROW, 1929.
„ *scoparius* MICHX.	$21+14_1$ / 2		CHURCH, 1929*b*.
„ *sorghum*		20	RAU, 1929*a*.
„ *sorghum* BROTERO	10	20	FAWOROW, 1929.
„ *sorghum* var. *sudanensis* PIPER . .	10	20	„ „
„ *sorghum* BROT. var. *vulgaris* HACK. .		20	MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
„ *sorghum* BROTERO × *A. sorghum* var. *sudanensis* PIPER	10		FAWOROW, 1929.
Sorghastrum nutans (L.) NASH.	20		CHURCH, 1929*b*.
Saccharum barberi	46		BREMER, 1929.
„ *officinarum*	40	ca. 80	„ „
„ *officinarum* (*Loethers* cane) . .	49		„ „
„ *officinarum* (NAZ Reunion)	55		„ „
„ *sinense*	ca. 58		„ „
„ *spontaneum* (from Java)	56		„ „
„ *spontaneum* (= *Glagah Tabongo* from Celebes)	40		„ „

GRAMINEAE (continued)	n	2n	
Saccharum (continued)			
Saccharum spontaneum (*Glagah Tabongo*) selfed	48–50		BREMER, 1929.
„ *officinarum* (var. Black *Cheribon*) × *S. spontaneum* (from Java) [1] . .	68		„ „
„*Kassoer*" (*S. officinarum* × *S. spontaneum*) (from Java)	68		„ „
Saccharum officinarum (var. Black *Cheribon*) × *S. spontaneum* F_2.	136/2		„ „
„ *officinarum* × *S. spontaneum* (*Glagah Tabongo* from Celebes)	120/2		„ „
„*Toledo*" from Phillippines (*S. officinarum* × *A. spontaneum*)	120/2		„ „
Saccharum officinarum × *S. officinarum* (var. Black *Cheribon*) × *S. spontaneum* . .	148/2		„ „
POJ. 100.	89/2		„ „
POJ. × *Kassoer* seedlings:			
POJ. 2364	148/2		„ „
POJ. 2354	157/2		„ „
POJ. 2323	152/2		„ „
POJ. 2725	106–7/2		„ „
POJ. 2883	115/2		„ „
POJ. 2878	119–20/2		„ „
EK 28	28		„ „

[1]) As *Kassoer* cane showed the same mode of reduction divisions as this hybrid, BREMER considered that *Kassoer* was proved to be a spontaneous hybrid of this origin.

GRAMINEAE (continued)	n	2n	
PANICEAE [1])			
Digitaria sanguinalis (L.) SCOP.	14		CHURCH, 1929*b*.
Paspalum muhlenbergii NASH. .	10 [2])		„ „
PANICUM			
Panicum frumentaceum var. *crus-galli*.		ca. 48	RAU, 1929*a*.
„ *miliaceum*		42	„ „
„ *miliare*		36	„ „
Dichotomiflora			
Panicum dichotomiflorum MICHX.	27		„ „
Capillaria			
Panicum miliaceum L.	20 [3])		„ „
Dicanthelium			
Lanuginosa			
Panicum lindheimeri NASH. var. *typicum* FERN . . .	9		„ „
„ *lindheimeri* NASH. var. *fasciculatum* (TORR.) FERN. . . .	9		„ „
„ *lindheimeri* var. *implicatum* (TORR.) FERN.			
„ *lindheimeri* NASH. var. *septentrionale* FERN.	9		„ „
„ *subvillosum* ASHE. .	9 [4])		„ „
Columbiana			
Panicum tsugetorum NASH. . .	9		„ „
Sphaerocarpa			
Panicum sphaerocarpon ELL. .	9 [5])		„ „
Oligosanthia			
Panicum scribnerianum NASH.	9		„ „
Setaria italica KUNTH		18	MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
Pennisetum typhoideum. . . .		14	RAU, 1929*a*.
Echinochloa crus-galli (L.) BAUV.	21		CHURCH, 1929*b*.
„ *frumentacea* (ROXB.) LINK. (= *Echinochloa crus-galli*			

[1]) Sequence of tribes and nomenclature used by CHURCH follow the treatment of HITCHCOCK (1920) but I have followed ENGLER and GILG.
[2]) Counts of 9 and 11 were also made.
[3]) Many counts of 18 were also made.
[4]) Frequently 7, 8 and 10 were counted.
[5]) Irregular distribution of the 9 bivalents often occurred.

GRAMINEAE (continued)	n	2n	
Echinochloa (continued)			
(L.) BAUV. var. *edulis* HITCHC.) .	28		CHURCH, 1929*b*.
Oryza sativa „Jirasala"		24	RAU, 1929*b*.
„ *sativa* „Tavalakanan" .		24	„ „
PHALARIDEAE			
Phalaris canariensis L.	6 [1])		CHURCH, 1929*a*.
„ *arundinacea* L. . . .	7		„ „
„ *arundinacea* L. var. *picta* L.	14 [1])		„ „
AGROSTIDEAE			
Alopecurus geniculatus L. var. *aristulatus* TORR. .	7 [1])		„ „
„ *pratensis* L. . . .	14 [1])		„ „
Ammophila breviligulata FERN.	14 [1])		„ „
Holcus lanatus L.		14	STÄHLIN, 1929.
„ *mollis* L.		14	„ „
AVENEAE			
Avena sativa L.	21 [1])		„ „
Phragmites communis	21		TISCHLER, 1929*a*, *b*.
„ *communis* var. *Pseudodonax*. . .	21		„ „
Dactylis glomerata L.	14 or $28_{\frac{1}{2}}$ [1])		CHURCH, 1929*a*.
Cynosurus cristatus L.		14	STÄHLIN, 1929.
„ *echinatus* L. . . .		14	„ „
POA			
Subgenus Eu-Poa HACKEL			
Section Leptoneurae DÖLL.			
Subsection Ochlopoa A. & G.			
Poa annua L.		28	„ „
Subsection Bolbophorum A. & G.			
Poa alpina L. = *P. bulbosa* L. ssp. *alpina* ASCHERS var. *badensis* (HKE.) KOCH		42	„ „
Poa alpina L. = *P. bulbosa* L. ssp. *alpina* ASCHERS var. *typica* BECK.		42	„ „
Subsection Oreinos A. & G.			
Cenisia A. & G.			
Poa caesia SM.		42	„ „

[1]) Cytological abnormalities of various kinds lagging chromosomes, incomplete pairing etc. were found.

GRAMINEAE (continued)	n	2n	
POA (continued)			
Subsection Hylopoa A. & G.			
Poa nemoralis L.		42	STÄHLIN, 1929.
„ *palustris* L.		42	„ „
„ *sterilis* M. B. subsp. *versicolor* (BESS.) RICHTER. .		28	„ „
Subsection Trichopoa A. & G.			
Poa compressa L.		56	„ „
Section Pachyneurae ASCHERS			
Subsection Homalpoa DUMORT.			
Poa Chaixi VILL. = *P. sudetica* HKE.		14+2	„ „
Subsection Pandemos A. & G.			
Poa pratensis L.		56	„ „
„ *trivialis* L.		14	„ „
Subgenus Pseudofestuca A. & G.			
Poa violacea BELL.		28	„ „
GLYCERIA			
Section Euglyceria GRISEB.			
Glyceria fluitans R. BR. . . .		28	„ „
„ *plicata* FRIES.		28	„ „
Section Hydropoa DUM.			
Glyceria aquatica WAHLB. var. *arundinacea* ASCHERS.		28	„ „
„ *aquatica* WAHLB. var. *typica* ASCHERS. . .		56	„ „
„ *nervata* TRIN.		28	„ „
Catabrosa aquatica P. B. . . .		21?	„ „
Atropis distans. GRISEB. = *Glyceria distans* WAHLB. = *Festuca distans* KUNTH		28	„ „
FESTUCEAE			
Festuca duriuscula L.	21 [1]		CHURCH, 1929*a*.
„ *ovina* L.	28 [1]		„ „
„ *rubra* L.	21 [1]		„ „

[1]) See foot-note page 224.

GRAMINEAE (continued)	n	2n	
FESTUCA			
Section ovinae HACK.			
Subsection Intravaginales HACK.			
Festuca ovina L. subsp. *alpina* (SUTER) HACK. var. *Suteri* ST. Y.		14	STÄHLIN, 1929.
„ *ovina* L. subsp. *eu-ovina* HACK. var. *capillata* HACK.		14	„ „
„ *ovina* L. subsp. *eu-ovina* HACK. var. *duriuscula* HACK		28	„ „
„ *ovina* L. subsp. *eu-ovina* HACK. var. *glauca* HACK. (*pallens*?) . .		28	„ „
„ *ovina* L. subsp. *eu-ovina* HACK. var. *glauca* HACK. subv. *pallens* (HOST.) HACK. . . .		28	„ „
„ *ovina* L. subsp. *eu-ovina* HACK. var. *supina* HACK. subv. *grandiflora* HACK.		14	„ „
„ *ovina* L. subsp. *eu-ovina* HACK. var. *vulgaris* HACK. subv. *genuina* HACK		42	„ „
„ *ovina* L. subsp. *frigida* HACK. var. *glacialis* (MIEGEVILLE) HACK.		14	„ „
„ *ovina* L. subsp. *frigida* HACK. var. *rupicaprina* (KERN) HACK.		28	„ „
„ *ovina* L. subsp. *laevis* HACK. var. *Halleri* (ALL.) HACK.		14	„ „
„ *ovina* L. subsp. *sulcata* HACK. var. *Panciciana* HACK		28	„ „
„ *ovina* L. subsp. *sulcata* HACK. var. *valesiaca* KOCH. subv. *eu-valesiaca* ST. Y.		14	„ „

GRAMINEAE (continued)	n	2n	
FESTUCA (continued)			
Subsection ovinae Exaratae St. Y.			
Festuca amethystina L.		28	STÄHLIN, 1929.
Subsection Extravaginales vel mixtae HACK.			
Festuca rubra L. subsp. *eurubra* HACK. var. *fallax* HACK.		42	„ „
„ *rubra* L. subsp. *eurubra* HACK. var. *genuina* HACK. subv. *arenaria* (FRIES) HACK.		42	„ „
„ *rubra* L. subsp. *eurubra* HACK. var. *genuina* HACK. subv. *vulgaris* HACK. . . .		42	„ „
„ *rubra* L. subsp. *eurubra* HACK. var. *multiflora* subv. *planifolia* (TRAUTV.) HACK.		42	„ „
„ *rubra* L. subsp. *heterophylla* (LAM.) HACK.		42	„ „
„ *rubra* L. subsp. *violacea* (GAUD.) HACK. .		14	„ „
Section Bovinae FRIES.			
Festuca elatior L. subsp. *arundinacea* HACK. var. *eu-arundinacea* ST. Y.		42	„ „
„ *elatior* L. subsp. *arundinacea* HACK. var. *Uechtritziana* (WIESBAUR) HACK.		28	„ „
„ *elatior* L. subsp. *pratensis* HACK. var. *apennina* HACK.		42	„ „
„ *elatior* L. subsp. *pratensis* HACK. var. *eu-pratensis* ST. Y.		14	„ „
„ *gigantea* VILL.		42	„ „
Section Subbulbosae NYM.			
Festuca Mairei ST. Y.		28	„ „
„ *spadicea* L.		14	„ „

	n	2n	
GRAMINEAE (continued)			
FESTUCA (continued)			
Section Variae HACK.			
Subsection Intravaginales HACK.			
Festuca varia HKE. subsp. *eu-varia* HACK. var. *flavescens* (BELL) A. & G.		14	STÄHLIN, 1929.
Festuca varia HKE. subsp. *eu-varia* HACK. var. *genuina* HACK.		28	„ „
„ *varia* HKE. subsp. *eskia* (RAM.) ST. Y. . .		42	„ „
„ *varia* HKE. subsp. *scoparia* KERN et HACK. var. *eu-scoparia* HACK. subv. *genuina* HACK. f. *crinum ursi* RAM. .		14	„ „
Subsection Extravaginales HACK.			
Festuca pulchella HUTER, PORTA et RIGO		14	„ „
„ *spectabilis* JAN. . . .		42	„ „
Section Montanae HACK.			
Festuca silvatica VILL.		42	„ „
Scleropoa rigida (L.) KUNTH. .		14	„ „
Vulpia bromoides DUM. (related to *V. myurus*)		14	„ „
„ *myurus* (L.) DUM. . .		42	„ „
Desmateria sicula DUM. . . .		14	„ „
BROMUS			
Subgenus Bromus A. & G.			
Section Zerna PANZER.			
Subsection Festucaria GODR.			
Bromus cappadocicus BOISS. et BAL. (belonging to *erectus* group) . . .		42	„ „
„ *ciliatus* L.		14	„ „
„ *ciliatus* L. var. *purgans* GR.		14	„ „
„ *erectus* HUDS. subsp. *eu-erectus* A. & G. . .		42	„ „
„ *erectus* HUDS. subsp. *stenophyllus* LK. . .		42	„ „
„ *inermis* LEYSS. . . .		42	„ „

GRAMINEAE (continued)	n	2n	
BROMUS (continued)			
Bromus pacificus SHEAR. . .		42	STÄHLIN, 1929.
„ *pumpellianus* SCRIBN. (closely related to *inermis*)		42	„ „
„ *ramosus* HUDS. var. *euramosus* A. & G. . .		14	„ „
Subsection Eubromus GODR.			
Bromus madritensis L.		42	„ „
„ *maximus* DESF. = *villosus* FORSK.		56	„ „
„ *maximus* DESF. var. *Gussoni* PARL. . . .		28	„ „
„ *purpurascens* DEL. = *rubens* L.		28	„ „
„ *sterilis* L.		14	„ „
„ *tectorum* L. var. *longipilus* KUMM. et SENDTN.		14	„ „
„ *tectorum* L. var. *typicus* A. & G.		14	„ „
Section Zeobromus GRISEB.			
Subsection Michelaria DUM.			
Bromus arduennensis DUM. . .		14	„ „
Subsection Serrafalcus KOCH. = *Bromi secalini* BERT.			
Bromus arvensis L.		14	„ „
„ *Kalmii* A. GR.		14	„ „
„ *macrostachys* DESF. . .		14	„ „
„ *mollis* L. = *hordeacus* L.		28	„ „
„ *secalinus* L.		28	„ „
„ *squarrosus* L.		14	„ „
„ *variegatus* BIEB. (like *mollis*)		42	„ „
„ *variegatus* BIEB. subsp. *japonicus* THUNB. = *patulus* M. & K. . .		14	„ „
Subgenus Ceratochloa P. B.			
Bromus australis SPRENG. . .		28	„ „
„ *breviaristatus* BUCKL. .		56	„ „
„ *carinatus* HOOK. et ARN.		56	„ „

GRAMINEAE (continued)	n	2n	
BROMUS (continued)			
Bromus polyanthus SCRIBN. . .		42	STÄHLIN, 1929.
„ *sitchensis* BONG. . . .		42	„ „
„ *unioloides* HUMB. et KUNTH. = *Ceratochloa Schraderi* KUNTH.		28	„ „
„ *virens* BUCKL. = *carinatus hookerianus* (THUNB.) SHEAR . .		14	„ „
Boissiera bromoides HOCHST. .		28	„ „
CHLORIDEAE			
Spartina alterniflora LOISEL var. *glabra* (MUHL.) FERN. . . .	$\frac{14+14_1}{2}$ [1]		CHURCH, 1929*a*.
Spartina michauxiana HITCH. .	14 [2]		„ „
Eleusine coracana		ca. 36	RAU, 1929*a*.
Agropyron cristatum	14		PETO, 1929.
„ *fenerum*	14 [2]		„ „
„ *Griffithsii*	7		„ „
„ *pungens*.	21 [2]		„ „
„ *repens*.	21 [2]		„ „
„ *repens* L.	21		MOWERY, 1929.
„ *Richardsonii* . . .	14		PETO, 1929.
Secale cereale (Prolific)	7		MELBURN, 1929.
Triticum acuminatum KAJ. . .		28	KAJANUS, 1927.
„ *compactum* HOST. Komaba ♯ 1		42	KAGAWA, 1929*c*.
„ *dicoccoides* var. *Kotschyanum* PERC. . .	14		KIHARA, 1929*b*.
„ *dicoccum*		28	KAGAWA, 1929*d*.
„ *dicoccum* SCHÜBL. (Blé Amidonnier blanc)		28	„ 1929*a*.
„ *dicoccum* SCHÜBL. U. A. C. (Utsunomiya Agr. Coll.) ♯ 1. .		28	„ 1929*b*.
„ *dicoccum* var. *liquliforme* KÖRN.	14		KIHARA, 1929*b*.
„ *durum* DESF. Komaba ♯ 1		28	KAGAWA, 1929*c*.

[1]) See foot-note page 224.

[2]) Lagging of one or two chromosome pairs was observed in the anaphase of the heterotypic division in this species.

GRAMINEAE (continued)	n	2n	
TRITICUM (continued)			
Triticum durum var. *Reichenbachii* KÖRN.	14		KIHARA, 1929*b*.
„ *monococcum*		14	KAGAWA, 1929*d*.
„ *monococcum* L.		14	KAJANUS, 1929.
„ *monococcum* L. (U.A.C. Utsunomiya Agr. Coll.) ♯ 1		14	KAGAWA, 1929*a*.
„ *obtusatum* KAJ.		42	KAJANUS, 1929.
„ *polonicum*		28	KAGAWA, 1929*d*.
„ *polonicum* L. (Blé de Pologne ou d'Astrakan)		28	„ 1929*a*, *b*.
„ *polonicum* var. *vestitum* KÖRN.	14		KIHARA, 1929*b*.
„ *spelta* L. (*ordinaire blanc sans barbes*)		42	„ 1929*c*.
„ *spelta* var. *Duhamelianum* KÖRN.	21		„ 1929*b*.
„ *turgidum* var. *buccale* KÖRN	14		JENKINS, 1929.
„ *vulgare*		42	KAGAWA, 1929*d*.
„ *vulgare* Hort. (Akadaruma)		42	„ 1929*a*.
„ *vulgare* var. *erythrospermum* KÖRN.	21		KIHARA, 1929*b*.
„ *durum* × *Triticum vulgare* F_1	$14 + 7_I$		SAPEHIN, L. A., 1929.
„ *durum* × *Triticum vulgare* F_2	$14—21 + 7_I — 0_I$		„ „ „
„ *durum* × *Triticum vulgare* F_2 (♯ 183)	$14 + 7_I$		„ „ „
„ *durum* × *Triticum vulgare* F_2 (♯ 135)	$16 + 4_I$		„ „ „
„ *durum* × *Triticum vulgare* F_3 (progeny of ♯ 135)	$16 + 4_I — 2_I$, $18 + 2_I$		„ „ „
„ *durum* × *Triticum vulgare* F_3 (progeny of ♯ 183)	$14 + 0_I — 6_I$, $15 + 4_I$, $16 + 5_I$, $17 + 4_I$		„ „ „

GRAMINEAE (continued)	n	2n	
TRITICUM (continued)			
Triticum spelta × *T. vulgare*	21		KIHARA, 1929*b*.
„ *dicoccoides* × *Aegilops ovata* [1])	0—6 + univ.	28	„ „
„ *durum* × *Aegilops ovata* [1])	0—4 + univ.	28	„ „
„ *spelta* × *Aegilops triuncialis*	0—5, + univ., $7 + \frac{21_1}{2}$ [2])	35	„ „
„ *turgidum* var. *buccale* KÖRN × *Aegilops speltoides* TAUSCH. F_1	4–10 + $\frac{13_1-1_1}{2}$ [3])	21	JENKINS, 1929.
„ *turgidum* var. *buccale* KÖRN × *Aegilops speltoides* TAUSCH. F_2	9–13 + $\frac{11_1-3_1}{2}$ [4])		„ „
„ *vulgare* var. *Marquis* × *T. compactum* HOST. var. *creticum* MAZZ. normal type .		42	VASILJEV given by PHILIPTSCHENKO, 1929.
„ *speltoid heterozygote* .		41	VASILJEV given by PHILIPTSCHENKO, 1929.
„ *speltoid homozygote* .		40	VASILJEV given by PHILIPTSCHENKO, 1929.
„ *vulgare* (from China) × *Secale Cereale* (Prolific)	$\frac{1+26_1}{2}$, $\frac{28_1}{2}$		MELBURN, 1929.

[1]) The variation in the number of bivalents in the embryo-sac-mother-cell was similar to that found in the pollen-mother-cell.

[2]) In pollen-mother-cells, 0—5 bivalents were found whereas in the embryo-sac-mother-cell, 7 bivalents and 21 univalents occurred.

[3]) Usually 7 pairs mated.

[4]) Usually there were 11 bivalents and 7 univalents.

GRAMINEAE (continued)	n	2n	
TRITICUM (continued)			
Triticum vulgare var. *ferrugineum* pure line # 100 × *Secale cereale* (winter rye)			
Hybrid # 6		49	PLOTNIKOV, 1928.
„ # 173		46	„ „
„ # 208		44	„ „
„ # 323		42	„ „
AEGILOPS [1])			
Subgenus Amblopyrum JAUB. et SP.			
Section Anathera EIG.			
Aegilops mutica BOISS. [2]) . . .		14	SCHIEMANN, 1929.
Subgenus Eu-Aegilops			
Section Platystachys EIG.			
Subsection Emarginata			
Aegilops bicornis (FORSK.) JAUB. et SP.		14	„ „
„ *longissima* SCHW. et NUSCH		14	„ „
„ *sharonensis* EIG. . .		14	„ „
Subsection Truncata			
Aegilops ligustica COSS. [3]) . .		14	„ „
„ *speltoides* TAUSCH. . .		14	„ „
	7		JENKINS, 1929.
„ *speltoides* TAUSCH. var. *ligustica* BOISS.		28	KAGAWA, 1929*a*.
Section Pachystachys EIG.			
Aegilops squarrosa L.		14	„ „
„ *crassa* BOISS. [3]) . . .		28&42	SCHIEMANN, 1929.
	21		
„ *juvenile* (THELLUNG) EIG. (= *A. turcomanica* ROSHEV.)	21		POPOVA, 1929*a*; SOROKINA given by POPOVA, 1929*b*.
„ *ventricosa* TAUSCH.[3]) .		28	SCHIEMANN, 1929.

[1]) Sections are according to EIG. (1929).
[2]) Two varieties were examined.
[3]) As no figures are shown, and as all determinations of chromosome numbers by SCHIEMANN 1928 were made from somatic tissues, the diploid numbers have been included here.

GRAMINEAE (continued)	n	2n	
Section Monoleptathera Eig.			
Aegilops cylindrica Host. [1]		28	Kagawa, 1929*a*, *b*; Schiemann, 1929.
	14		Popova, 1929*a*.
Section Macrathera Eig.			
Aegilops caudata L. [1]		14	Schiemann, 1929.
„ *comosa* Sibth. a Sm. [1]		14	„ „
„ *uniaristata* Vis. [1]		14	„ „
Section Pleionathera Eig.			
Subsection adherens			
Aegilops Kotschyi Boiss.		28	„ „
„ *variabilis* var. *typica* Eig.		28	„ „
„ *variabilis* var. *mutica* Eig.		28	„ „
Subsection Libera			
Aegilops biuncialis Vis.		28	Popova, 1929*a*.
„ *columnaris* Zhuk. [2]		28	„ „
„ *ovata* L.		28	Schiemann, 1929; Kagawa, 1929*b*, *c*.
	14		Kihara, 1929*b*.
„ *triaristata* Willd.		28, 42	Schiemann, 1929.
„ *triuncialis* L. [3]		28	„ „
	14		Popova, 1929*a*; Kihara, 1929*b*.
„ *umbellulata* Zhuk. [4]		14	Schiemann, 1929.
„ *ventricosa* Tausch. [5]	14		Kihara, 1929*b*.
„ *ovata* × *Aegilops ventricosa*	5 — 10 + univ.	28	„ „
„ *ovata* × *Aegilops triuncialis*	5 — 11 + univ.		„ „
„ *triuncialis* × *Aegilops ovata*		28	„ „
„ *ventricosa* × *Aegilops ovata*	3 — 8 + univ.	28	„ „

[1]) See foot-note 3 page 233.

[2]) The „Bastardtyp" (*triuncialis* × *triaristata*) referred to by Schiemann (1928) was determined to be a *columnaris* Zhuk.

[3]) *Aegilops triticoides* of Kihara, 1924 was identified as *A. triuncialis* L.

[4]) *Aegilops ovata* var. *anatolica* referred to by Schiemann (1928) was determined to be *A. umbellulata* Zhuk.

[5]) *Aegilops squarrosa* (2n = 28) could not be distinguished from *A. ventricosa* Tausch

GRAMINEAE (continued)	n	2n	
AEGILOPS (continued)			
Aegilops ovata × *Triticum dicoccoides*	0 — 3 + univ.	28	KIHARA, 1929*b*.
„ *ovata* × *Triticum durum*	1 — 7 + univ.	28	„ „
„ *triuncialis* × *Triticum dicoccoides* [1]) . . .	— 0 7 + univ.	28	„ „
„ *triuncialis* × *Triticum dicoccum*	1 — 7 + univ.	28	„ „
„ *triuncialis* × *Triticum durum*	0 — 8 + univ.	28	„ „
„ *triuncialis* × *Triticum polonicum* [1])	3 — 8 + univ.	28	„ „
„ *triuncialis* × *Triticum spelta*	0 — 7 + univ.	35	„ „
„ *triuncialis* × *Triticum vulgare*	0 — 5 + univ.	35	„ „
„ *cylindrica* × *Triticum dicoccum*	$\frac{28_{\text{I}}}{2}$		KAGAWA, 1929*b*.
„ *ovata* × *Triticum polonicum*	$\frac{28_{\text{I}}}{2}$		„ „
Hordeum [2]) *bulbosum*		28	GHIMPU, 1929*f*.
„ *cornutum* Hort. VILMORIN		14	„ 1929*a*, *f*.
„ *distichon* L. . . .		14	KAGAWA, 1929*c*.
„ *distichum giganteum* Hort. VILMORIN. .		14	GHIMPU, 1929*a*, *f*.
„ *distichum erectum* var. *Princesse de Svalöf*		14	„ 1929*c*.

[1]) See foot-note 4 page 234.

[2]) According to GHIMPU (1929*a*, *c*, *f*) all species of *Hordeum* examined showed a pair of satellites except *H. maritimum*.

GRAMINEAE (continued)	n	2n	
HORDEUM (continued)			
Hordeum distichum nutans var. *Princesse de Svalöf*		14	GHIMPU, 1929*a*, *f*.
„ *distichum nutans* var. *Issoudun* . .		14	„ 1929*a*, *f*.
„ *distichum nutans spontanaceum* Hort. VILMORIN		14	„ 1929*a*, *f*.
„ *erectum* var. *Goldthorpe*		14	„ 1929*a*, *f*.
„ *hexastichum*		14	„ „
„ *hexastichum trifurcatum album monstruosum* Hort. VILMORIN		14	„ „
„ *jubatum* L.		28	KAGAWA, 1929*c*.
„ *maritimum* [1]) . . .		14	GHIMPU, 1929*a*, *f*.
„ *nigrum*		14	„ „
„ *nudiramulosum* Hort. VILMORIN		14	„ „
„ *nudum*		14	„ „
„ *secalinum*		28	„ 1929*f*.
„ *tetrastichum*		14	„ 1929*a*, *f*.
„ *thyrsoideum* Hort. VILMORIN		14	„ „
„ *vulgare* Branching Hort. VILMORIN. .		14	„ „
„ *vulgare Escourgeon d'Algérie*		14	„ „
„ *zeocritum*		14	„ „
HORDEUM			
Subgenus Elymocrithe A. & G.			
Section Euhordeum A. & G.			
Subsection Crithe DÖLL.			
Hordeum distichum L. var. *nutans* SCHÜBL. . . .		14	STÄHLIN, 1929.
„ *distichum* L. var. *trifurcatum* WENDEROTH		14+1	„ „
Subsection Hordeastrum DÖLL.			
Hordeum bulbosum L.		28	„ „

[1]) This species did not show a pair of satellites, GHIMPU (1929*a*, *f*).

GRAMINEAE (continued)	n	2n	
HORDEUM (continued)			
Hordeum jubatum L.		28	STÄHLIN, 1929.
„ *murinum* L.		28	„ „
„ *secalinum* SCHREB. .		28	„ „
Section Cuviera KOELER.			
Hordeum caput medusae Coss.		14	„ „
„ *silvaticum* HUDS. . .		28	„ „
Subgenus Eu-elymus A. & G. = *Elymus* L.			
Section Elymus HOCHST.			
Hordeum arenarium ASCHERS.		56	„ „
Section Clineltymus GRISEB.			
Hordeum canadense A. & G. .		28	„ „
„ *nigrescens* × *H. trifurcatum* Hort. VILMORIN		14	GHIMPU, 1929*a*, *f*.
„ *nigrum* × *H. trifurcatum* Hort. VILMORIN		14	„ „
„ *Steudelii* × *H. trifurcatum*		14	„ „
CYPERACEAE			
Dulichium arundinaceum (L.) BRITTON	16		HICKS, 1929.
Cyperus dentatus TORR. . . .	17		„ „
„ sp. (*C. tenellus* L.?). .	21		„ „
„ *erythrorhizos* MUHL. .	48		„ „
„ *esculentus* L.	54		„ „
„ *filiculmis* VAHL. var. *macilentus* FERN. . .	73		„ „
Eriophorum virginicum L. . .	29		„ „
Scirpus palustris (from Lund).	8		HÅKANSSON, 1929*d*.
„ „ (from Holmsjö)	19	ca. 38	„ „
Eleocharis acicularis (L) R.&S.	18,19,28[1]) 25–29		HICKS, 1929.
„ *capitata* (L) R. BR. (= *E. tenuis* (WILLD.) SCHULTZ.	19		„ „
„ *obtusa* (WILLD.) SCHULTES	5		

[1]) Late prophase showed 28 chromosomes in the majority of cases. In heterotypic metaphase plates the number varied from 25 tot 29. In homoeotypic metaphase plates the count varied as 18, 19 etc.

	n	2n	
CYPERACEAE (continued)			
ELEOCHARIS (continued)			
Eleocharis palustris (L) R. & S.	8 [1])	9	HICKS, 1929.
„ *palustris* (L) R. & S.	8 [2]) 9 18 [3])		„ „
„ *tenuis* (WILLD.) SCHULTZ.	19		„ „
„ *tuberculosa* (MICHX) R. & S.	15		„ „
„ sp. (from New Zealand)	10		„ „
PRINCIPES.			
PALMAE			
Trachycarpus excelsus WENDL.	17 [4])		SINOTO, 1929*b*.
„ *excelsus* WENDL. var. *Fortunei* MAK.	17 [5])		„ „
FARINOSAE			
COMMELINACEAE			
Tradescantia crassifolia. . . .	6		DARLINGTON, 1929*b*.
„ *crassifolia* CAV. .	6 + 2_I	12 — 2 frag.	„ 1929*e*.
„ *fluminensis* . . .		60	„ 1929*b*.
„ *fluminensis* VELL.		60	„ 1929*e*.
„ *fluminensis* VELL. variegated . .		60	„ 1929*e*.
„ *geniculata* JACQ. .		32	„ 1929*e*.
„ *navicola* . . .		32	„ 1929*b*.
„ *navicularis* ORTGIES.		32	„ 1929*e*.
„ *virginiana* . . .		24	„ 1929*b*.
„ *virginiana* L. . .			
varieties and sub-species:			
alba (ALDENHAM)	11 — 12		„ 1929*e*.
alba (KEW)	11 — 13		„ 1929*e*.
bracteata	11 — 12	24	„ 1929*e*.
brevicaulis	7 — 11	18	„ 1929*e*.
caerulea (double)		24 — 1 frag.	„ 1929*e*.

[1]) See foot-note page 237.
[2]) In material of one collection 9 chromosomes were found.
[3]) Some large plants from Heard's Pond, Wayland, Mass. had 18 chromosomes.
[4]) An unequal pair of chromosomes was distinguishable in meiotic divisions of male flowers.
[5]) An unequal pair of chromosomes was not observed with certainty in this form.

	n	2n		
COMMELINACEAE (continued)				
Chelsea seedling (No. 1) . .		24	DARLINGTON,	1929*e*.
„ „ (No. 2) . .		25	„	1929*e*.
congesta	11 — 13	24	„	1929*e*.
delicata		24	„	1929*e*.
hirsuta	11 — 13	24	„	1929*e*.
humilis		24 — 3 frag.	„	1929*e*.
lilacina		24	„	1929*e*.
Medium Blue (No. 1). . . .	10 — 14	24 — 4, 5, 6 frag.	„	1929*e*.
„ „ (No. 4). . . .	10 — 13	24	„	1929*e*.
Montana	11 — 14	25 — 2 frag.	„	1929*e*.
Pale blue	12		„	1929*e*.
reflexa		24	„	1929*e*.
rubra		24 — 3 frag.	„	1929*e*.
small red	11— 12	24	„	1929*e*.
Taplow Crimson		24 — 4 frag.	„	1929*e*.
Cyanotis somaliensis		28	„	1929*b*.
„ *somaliensis* C. B. CLARKE		28	„	1929*e*.
Treleasis brevifolia ROSE . . .		24	„	1929*e*.
Zebrina pendula SCHNITZEL . .	8—24,24	24	„	1929*e*.
Coleotrype Natalensis C. B. CLARKE		36	„	1929*e*.
Rhoeo discolor HANCE	12	12	„	1929*e*.
Dichorisandra thyrsiflora MIKAR.	19	38	„	1929*e*.
Spironema fragrans LINDL. .		12	„	1929*e*.
Tinantis fugax		68	„	1929*b*.
	34	68	„	1929*e*.
„ „ (selfed seedling)		68	„	1929*e*.
Commelina benghalensis . . .		probably 68	„	1929*e*.
„ *coelestis*		90	„	1929*b*, *e*.
„ *nudiflora*		56	„	1929*e*.
LILIIFLORAE				
LILIACEAE				
Eremurus altaicus (PALL.) STEV.	7		BURSTRÖM,	1929.
„ *himalaicus* BAKER .	7		„	„
„ *robustus* RGL. . . .	7		„	„
„ *spectabilis* M. B. var.				

LILIACEAE (continued)	n	2n	
Eremurus (continued)			
Eremurus marginatus. . . .	7		BURSTRÖM, 1929.
Eremurus himalaicus × *E. robustus* (= *E. „himrob"*)	7		„ „
Funkia Sieboldiana		48 [1])	LI, 1929.
Aloë macrantha	7	14	JOHANSEN, 1929*d*.
Hemerocallis aurantiaca BAK. .	11	22	TAKENAKA, 1929.
„ *citrina*		12	STOUT & SUSA, 1929.
„ *disticha* DONN. .	11	22	TAKENAKA, 1929.
„ *disticha* var. Kwanso NAKAI . . .	11—20	33	„ „
„ *flava* L.	11	22	„ „
„ *fulva* L.	11—20	33	„ „
„ *fulva clon Europa*	6 [2])	12 [3])	„ „
„ *fulva fl. ploeno* .	16 [4])		SIENICKA, 1929.
„ *longituba* MIQ. .	11	22	„ „
„ *Middendorfi.* TRAUTV. et MEY.	11	22	„ „
„ *minor* MILL. . .	11	22	„ „
„ sp. α.		22	„ „
„ sp. B.		33	„ „
Aloë macrantha			JOHANSEN, 1929*d*.
Allium flavum L.	8		LEVAN, 1929.
„ *Karataviense* REG. . .	8		„ „
„ *Moly* L.	7		„ „
„ *Ostrowskianum* REG. .	8		„ „
„ *pulchellum* DON. . . .	8		„ „
„ *saxatile* BIEB.	8		„ „
„ *sphaerocephalum* L. .	8		„ „
„ *subtilissimum* LEDEB. .	8		„ „
„ *Victorialis* L.	8		„ „
„ *yunnanense* DIELS . .	16		„ „
Fritillaria imperialis	24—6		DARLINGTON, 1929*e*.

[1]) The number was determined from a rough count of a few equatorial plates in the endosperm showing the triple fusion nucleus with ca. 72.

[2]) Due to various arrangements of 12 chromosomes as 6 bivalents, $5 + 2_1$, $4 + 4_1$, $3 + 6_1$, $2 + 8_1$, $1 + 10_1$, or 12_1 followed by division of some univalents, as many as 18 chromosomes have been found in microspores.

[3]) Due to non distribution varying numbers of chromosomes were found in somatic cells, the highest number being 56.

[4]) 16 Gemini were formed at diakinesis. At the heterotypic division no typical equatorial plate was formed and diads might be formed or homoeotypic division with a typical equatorial plate might follow.

LILIACEAE (continued)	n	2n	
Fritillaria (continued)			
Fritillaria latifolia	24		DARLINGTON, 1929*e*.
„ *ruthenica*	18		„ „
„ *Meleagris*	24		„ „
Tulipa Clusiana.		60	„ „
„ *Clusiana* DC.	uni-, bi-, tri-, quadri- & quinque-valents	60	NEWTON & DARLINGTON, 1929.
„ sp. — *Keizerskroon*	uni-, bi- & trivalents	36	„ „ „
„ sp. — *Massenet* . . .	uni-, bi- & trivalents	36	„ „ „
„ sp. — *Pink Beauty*	uni-, bi- & trivalents	36	„ „ „
Galtonia candicans DCS. . . .	8	16	KACHIDZE, 1929*b*.
Ornithogalum narbonense . .		14, 28	SPRUMONT, 1928.
„ *nutans*		16	„ „
„ *pyrenaicum* . .		32, 64	
		32 & 64	„ „
„ *umbellatum* . .		27, 45	„ „
Hyacinthus orientalis var. *Arentine Arendsen* . .		28	DARLINGTON, 1929*d*.
„ *orientalis* var. *City of Haarlem* . . .		23	„ „
„ *orientalis* var. *Grand Maitre*	12_3		BELLING, 1929.
		24	DARLINGTON, 1929*d*.
„ *orientalis* var. *King of the Blues* . . .	12_3		BELLING, 1929.
		24	DARLINGTON, 1929*d*.
„ *orientalis* var. *La Grandesse*		28	„ „
„ *orientalis* var. *La Peyrouse*		26	„ „
„ *orientalis* var. *Lady Derby*.	12_3		BELLING, 1929.
		24	DARLINGTON, 1929*d*.
„ *orientalis* var. *L'Innocence*	12_3		BELLING, 1929.
„ *orientalis* var. *Marconi*		24	DARLINGTON, 1929*d*.
„ *orientalis* var. *Moreno*		24	„ „

	n	2n	
LILIACEAE (continued)			
Hyacinthus (continued)			
Hyacinthus orientalis var. *Nimrod*		19	DARLINGTON, 1929*d*.
„ *orientalis* var. *Queen of the Pinks* . . .		24	„ „
„ *orientalis* var. *Roi des Belges*		24	„ „
„ *orientalis* var. *Totula*		30	„ „
Yucca filamentosa L.	30		MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA&YAMASAKI, 1929.
Asparagus officinalis L. . . .	10	20	KAMO, 1929.
„ *officinalis* L. ♀ & ♂ .	10		SHOJI & NAKAMURA, 1928.
Smilax herbacea		13	LINDSAY, 1929.
AMARYLLIDACEAE			
Haemanthus Katharinae . . .	9		WOYCICKI, 1929.
Narcissus Balbocodium var. „*Common Hooped Petticoat*" (double flowered)		14	NAGAO, 1929*a*.
„ *Balbocodium* var. „*Conspicuous*" [1] .		21	„ „
„ *Balbocodium* var. „*Androecium* of *Balbocodium*" . .		42	„ „
„ *incomparabilis* var. „*Nelson Major*" .		14	„ „
„ *incomparabilis* var. „*Gloria Mundi*" .		21	„ „
„ *incomparabilis* var. „*Sir Watkin*" . .		21	„ „
„ *jonquilla* (double flowered)		14	„ „
„ *poeticus* var. „*Poetarum*"	7_3 [2]	21	„ „
„ *poeticus* var. *poetarum*	7_3 [3]		„ 1929*b*.
„ *poetaz* var. „*Elvira*"?		25	„ 1929*a*.
Bellevallia speciosa G. WOR. .	4	8	DELAUNAY, 1928.

[1]) NAGAO 1929 stated that this named variety was classified by some authors as some other species.

[2]) Sometimes 1 to several univalents were among the trivalents so that 8, 9 or 10 chromosomal units may be counted in the nuclear plate. The chromosome numbers in the homoeotypic plates were 10 and 11 and 10 and 12.

[3]) Sometimes univalent and bivalent chromosomes appeared with the trivalents.

AMARYLLIDACEAE (cont'd)	n	2n	
Muscari acutifolium Boiss. . .	9	18	Delaunay, 1928.
„ *forniculatum* Fomin .	9		
„ *longipes* Boiss. . . .	9	18	„ „
„ *tenuiflorum* Tausch .	9	18 [1]	„ „ ; Kachidze, 1929*b*.
Narcissus Pseudonarcissus var. „*Albicano*"		14	Nagao, 1929*a*.
„ *Pseudonarcissus* var. „*Empress*"		22	„ „
„ *Pseudonarcissus* var. „*Golden Spur*" . .		30	„ „
„ *Pseudonarcissus* var. „*Grandee*"		ca. 22	„ „
„ *Pseudonarcissus* var. „*King Alfred*" . .		28	„ „
„ *Pseudonarcissus* var. „*Olympia*"		28	„ „
„ *Pseudonarcissus* var. „*Victoria*"		14	„ „
„ *tazetta* var. (a „bicolores" type) . . .		20	„ „
„ *tazetta* var. (an „albae" type)		22	„ „
„ *tazetta* var. „*Luna*" .		ca. 32	„ „
Agave Sisalana Perrine . . .		14	Catalano, 1929.
Alstroemeria aurantiaca . . .	8	16	Whyte, 1929*a*.
„ *brasiliensis* . . .	8	16	„ „
„ *haemantha* . . .	8	16	„ „
„ *pulchella*	8	16	„ „
Bomarea Banksii (*B. Caldasiana* × *B. patacocensis*	9 [2]	18	„ „
„ *cantabrigiensis* (*B. Caldasiana* × *B. edulis*)	9 [2]	18	„ „
„ *Matthewsii* (*B. Carderi* × *B. edulis*) . .	9 [2]	18	„ „
„ *Whittonii* (*B. edulis* × *B. Carderi*) . . .	9 [2]	18	„ „

[1]) Kachidze (1929*b*) found that there were 2 pairs of satellites in the homozygous and 1 pair in the heterozygous race.

[1]) Generally there were no abnormalities in the meiotic prophase but occasionally one or 2 bivalents were loosely paired.

IRIDACEAE	n	2n	
Iris acutiloba C. A. M.		20	DELAUNAY, 1928.
„ *caucasica* HOFFM.		18	„ „
„ *cypriana* FOSTER & BAKER	24	48	SIMONET, 1929*a*.
„ *florentina* L.	12	24	„ „
		48 [1]	KAZAO, 1929.
„ *germanica* L. de Verone Hort.	$16+12_1$	44	SIMONET, 1929*c*.
„ *germanica* L. Col du Chat Hort.	$14+16_1$	44	„ „
„ *germanica* L. var. Kharput Hort.	$16+12_1$	44	„ „
„ *germanica* L. var. *Coerulea* Hort.	$16+12_1$	44	„ „
„ *germanica* L. var. *Erebe* Hort.	$16+12_1$	44	„ „
„ *germanica* L. var. *Alba* Hort. (= *I. florentina* KER-GAWL)	$16+13_1$	45	„ „
„ *gracilipes* A. GRAY . . .	18	36	KAZAO, 1929.
„ *japonica* THUNB.		54 [1]	„ „
„ *hycrana* G. WOR.		20	DELAUNAY, 1928.
„ *iberica* HOFFM.		20	„ „
„ *Kaempferi* SIEB. var. *Chôseiden*.	12	24	INARIYAMA, 1929.
„ *Kaempferi* SIEB. var. *Edojiman*		24	„ „
„ *Kaempferi* SIEB. var. *Gyokuhôren*		24	„ „
„ *Kaempferi* SIEB. var. *hortensis* MAKINO	12	24	KAZAO, 1929.
„ *Kaempferi* SIEB. var. *Iwato-no-hikari*		24	„ „
„ *Kaempferi* SIEB. var. *Junihitoe* Subf. *pentapetala*. .	12	24	„ „
„ *Kaempferi* SIEB. var. *Kurokumo*	12	24	„ „
„ *Kaempferi* SIEB. var. *Mandai-no-nami*	12	24	„ „
„ *Kaempferi* SIEB. var. *Matsubagasane*		24	„ „
„ *Kaempferi* SIEB. var. *Nanakomachi*	12	24	„ „

[1]) Meiotic divisions in pollen-mother-cells of this species were quite irregular. A number of trivalent chromosomes were found.

IRIDACEAE (continued)	n	2n	
Iris (continued)			
Iris Kaempferi SIEB. var. *Nohanashôbu*	12	24	KAZAO, 1929.
„ *Kaempferi* SIEB. var. *Ônarumi*		24	„ „ .
„ *Kaempferi* SIEB. var. *Shiga-no-uranami*	12	24	„ „
„ *Kaempferi* SIEB. var. *spontanea Makino*	12	24	„ „
„ *Kaempferi* SIEB. var. *Suibijin*	12	24	„ „
„ *Kaempferi* SIEB. var. *Zama-no-mori*	12	24	„ „
„ *Kaempferi* SIEB. var. [1] .		24	„ „
„ *laevigata* FISH.	16		INARIYAMA, 1929.
„ *laevigata* FISH. et MEY. .	16	32	KAZAO, 1929.
„ *macrantha* Hort. (ANAS) .	24	48	SIMONET, 1929*a*.
„ *pallida* LAM.	12	24	„ „
„ *paradoxa* STEV.		20	DELAUNAY, 1928.
„ *reticulata* M. B.		20	„ „
„ *Schelkownikowii* FOMIN. .		20	„ „
„ *sibirica* L. var. *orientalis* MAKINO	14	28	KAZAO, 1929.
„ *trojana* A. KERN	24	48	SIMONET, 1929*a*.
„ *variegata* L.	12	24	„ „
„ *Winogradowii* FOMIN. . .		16	DELAUNAY, 1928.
Section Gynandris			
Iris tuberosa L. (*Hermodactylus tuberosa* MILL.) [2] . . .		20	SIMONET, 1929*b*.
Section Pogoniris			
Iris Alberti REGEL		12	„ 1929*d*.
„ *Alberti* REGEL var. *semperflorens* Hort.	12		„ „
„ *albicans* LANGE		44	„ „
„ *chamaeiris* BERTOL. . . .	20		„ 1929*c*.
„ *kashmiriana* BAKER . . .		51	„ 1929*d*.
„ *Kochii* A. KERNER . . .		44	„ „
„ *olbiensis* HENON	20		„ 1929*c*.
„ *pumila* L.	18	36	„ „
„ *pumila* Hort. var. *caerulea* Hort. = var. *cyanea* Hort. [3]	20		„ „

[1]) Five unnamed varieties were found to have 24 diploid chromosomes.
[2]) This was included by SIMONET (1928*a*) under the latter name.
[3]) Often two rarely four univalents were found on the equatorial plate.

IRIDACEAE (continued)	n	2n		
Iris (continued)				
Iris pumila Hort. var. *Rupert* Hort. [1])	20		SIMONET,	1929*c*.
„ *Ricardi* Hort.		48	„	1929*d*.
„ *subbiflora* BROT.		40	„	„
„ *subbiflora* BROT. var. *Major* HORT.		40	„	„
„ *virescens* DC.	20		„	1929*c*.
	$9+\frac{18_1}{2}$			
	$10+\frac{16_1}{2}$			
	$11+\frac{14_1}{2}$			
Section Evansia				
Iris milesii BAKER		26	„	„
Section Apogon				
Iris spuria L. var. *maritima* LAM.		38	„	„
„ *Wilsoni* WRIGHT.		40	„	„
Section Regelia				
Iris Korslkowi REGEL var. *concolor* Hort.		44	„	„
„ *Korslkowi* REGEL var. *violacea* Hort.		22	„	„
„ *Leichtlini* REGEL		44	„	„
Section Juno				
Iris bucharica FOSTER	11		„	„
„ *orchioides* CAR.		22	„	„
„ *sindjarensis* BOISS. et HAUSS.		22	„	„
Section Xiphion				
Iris Tingitana BOISS.	21 [2])			
„ „ „		28 [3])	„	„
„ „ „ var. *Fontanesii* G. G.	14	28 [4])	„	„
Hybrids:				
— „*Alcazar*" (VILMORIN, 1909)		48	„	1929*a*.
— „*Alhambra*" (VILMORIN, 1907)		50	„	„

[1]) See foot-note 3 page 245.

[2]) In the homoeotypic equatorial plates 19 and 23 or 20 and 22 chromosomes were found.

[3]) In one form this number was found.

[4]) In certain roots 56 as well as 28 chromosomes were found as the diploid number.

IRIDACEAE (continued)	n	2n		
Hybrids (continued)				
— *„Allies"* (VILMORIN, 1920) .		35	SIMONET, 1929*a*.	
— *„Ambassadeur"* (VILMORIN, 1915) [1]		50	„	„
— *„Dominion"* (BLISS, 1919) .		50	„	„
— *„Isoline"* (VILMORIN, 1904)		36	„	„
Iris Jacquesiana.		24	„	„
Iris Koenig (GOOS et KOENEMANN, 1907).		25	„	1929*c*.
— LENT A. WILLIAMSON (WILLIAMSON, 1916) [2] . . .		50	„	1929*a*.
Iris „Magnifica" (VILMORIN, 1914)		62	„	„
„ *„Magnifica"* (VILMORIN, 1914)	$25+\frac{12_1}{2}$	62	„	1929*c*.
— *„Shelford Chieftain"* (FOSTER, 1909).		49	„	1929*a*.
— *„Souvenir de Madame Gaudichau* (MILLET, 1914). .		47	„	„
— *„Tamerlan"* (VILMORIN, 1909)		48	„	„
Iris Zwanenburg (F. DENIS, 1909 or 1912) = (*I. lutescens* LAM. var. *aurea* Hort. × *I susiana* L.) .	$12+\frac{18_1}{2}$	42	„	1929*c*.
	$10+\frac{22_1}{2}$		„	„
	$11+\frac{20_1}{2}$		„	„
	$13+\frac{16_1}{2}$		„	„
Iris pumila Hort. × *I. germanica* Hort.				
— *Dauphin* (CAPARNE, 1901) .		44	„	„
— *Diamond* (CAPARNE, 1901) .		44	„	„
— *Dorothee* (CAPARNE, 1901) .		44	„	„
— *Ingeborg* (GOOS et KOONEMAN, 1908)		44	„	„
— *Ivorine* (CAPARNE, 1901). .		44	„	„
— *Odine* (CAPARNE, 1901) . .		44	„	„

[1] In somatic metaphases 2 satellites were found.
[2] In somatic metaphases 5 satellites were found.

SCITAMINEAE	n	2n	
MUSACEAE			
Musa Basjo SIEB.		11	MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
CANNACEAE			
Canna aureo-vittata	9		HONING, 1928.
„ *aureo-vittata gigas* . . .	18, 94 or tetra-, bi- and univalents		„ „
„ *glauca*	9		„ „
„ *indica*	9		„ „
„ *glauca* × *C. indica*. . .	9		„ „
ZINGIBERACEAE			
Zingiber Mioga ROSC.	28	55?	MORINAGA, FUKUSHIMA, KANÔ, MARUYAMA, YAMASAKI, 1929.
MICROSPERMAE			
ORCHIDACEAE			
DIANDRAE			
Cypripedium spectabile	11		HOFFMANN, 1929.
„ „*Blenheimense*" .		24	„ „
Phragmopedilum Sedenii (*Phr. Schlimii* × *Phr. longifolium*) .		24	„ „
Paphiopedilum Chamberlainianum		24	„ „
„ *insigne* [1]) . . .	16	32	„ „
MONANDRAE			
Acrotonae			
POLYCHONDREAE			
Vanilla planifolia		ca. 32	„ „
Listera ovata	17		„ „
	17 [2])	34 [3])	TUSCHNJAKOVA, 1929*a*.
„ *ovata* R. BR.	17		STANER, 1929.
KEROSPHAEREAE			
Stelis atropurpurea.	16		HOFFMANN, 1929
Physiphon carinatus	ca. 16		„ „
„ *Loddigesii* . . .	ca. 16		„ „
Coelogyne fimbriata	20		„ „
„ *flexuosa*	20		„ „
„ *fuliginosa*	20		„ „
Dendrochilum glumanum . . .	20		„ „
Pholidota conchoidea	20		„ „

[1]) Five different plants gave this number.
[2]) In a few cells 16 or 18 chromosomes were found.
[3]) In several plates 36 chromosomes were counted.

ORCHIDACEAE (continued)	n	2n	
Epidendrum ramiferum	20		HOFFMANN, 1929.
Laeliocattleya Canhamiana (*Cattleya Mossiae* × *Laelia purpurata*) × *Laelia tenebrosa superba*	20		„ „
Dendrobium chrysotoum . . .	20		„ „
„ *infundibulum* . .	20		„ „
„ *thyrsiflorum* . . .	20		„ „
„ *Wardianum* var. *giganteum* . . .		40	„ „
PLEURANTHAE			
Bulbophyllum saurocephalum .	20		„ „
Cymbidium Lowianum	20		„ „
Stanhopea insignis	20		„ „
„ *tigrina*	20		„ „
Lycaste aromatica	20		„ „
Bifrenaria Harrisoniae		40	„ „
Zygopetalum Mackayi	ca. 24		„ „
Koellensteinia graminea . . .		ca. 48	„ „
Ornithidium demum	24		„ „
Oncidium bicallosum	14		„ „
„ *flexuosum*		56	„ „
„ *varicosum*	28		„ „
Vanda suavis LDL.	ca. 16		„ „
„ *tricolor* LDL.		ca. 16	„ „

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